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**THE L&R GROUP**

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FINAL

## **Limited Asbestos Bulk and Air Sampling Survey**

Mountain Home Air Force Base Installation Restoration Program Site Landfill 43 Site  
366 Gunfighter Avenue, Mountain Home, Idaho 83648

Submitted to:

U.S. Army Corps of Engineers – Seattle District  
4735 E. Marginal Way South  
Seattle, Washington 98135-2388

Prepared on behalf of:

FPM Remediations, Inc.  
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Contract Number W912DW-19-D-1025

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December 2020

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## Acronyms and Abbreviations

°F	degrees Fahrenheit
ACM	Asbestos Containing Material
ADDL	Asbestos Debris Disposal Landfill
AECOM	AECOM Technical Services, Inc.
AHERA	Asbestos Hazard Emergency Response Act
AIHA	American Industrial Hygiene Association
ASHARA	Asbestos Schools Hazard Abatement Reauthorization Act
CAS	Chemical Abstract Summary
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
COC	Contaminant of Concern
CoC	Chain of Custody
COR	Contracting Officer Representative
CV	Calibration verification
DoD	Department of Defense
DQOs	Data Quality Objectives
EPA	United States Environmental Protection Agency
f/cc	fibers per cubic centimeter
FPM	FPM Remediations, Inc.
GPS	Global Positioning System
iATL	International Asbestos Testing Laboratories, Inc.
ID	Identification number
IDEQ	Idaho Department of Environmental Quality
IDQTF	Intergovernmental Data Quality Task Force
IRP	Installation Restoration Program
ISO	International Organization for Standardization
L&R	L&R Group
MAP	Model Accreditation Program
mph	miles per hour
MHAFB	Mountain Home Air Force Base
ND	Non-detect
NESHAP	National Emission Standards for Hazardous Air Pollutants
NIOSH	National Institute for Occupational Safety and Health
NVLAP	National Voluntary Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PCM	Phase Contrast Microscopy
PCMe	Phase Contrast Microscopy-equivalent
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
s/cc	structures per cubic centimeter
TEM	Transmission Electron Microscopy
UFP-QAPP	Uniform Federal Policy-Quality Assurance Project Plan
U.S.	United States
USACE	U.S. Army Corps of Engineers



FPM Remediations, Inc. (FPM) retained The L&R Group (L&R) to perform a limited asbestos bulk and air sampling survey for the Mountain Home Air Force Base (MHAFB) Installation Restoration Program (IRP) Site Landfill 43 (LF043) Site (Figure 1), located in Mountain Home, Idaho. The sampling and reporting were performed in accordance with the Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP) Asbestos and Air Sampling at LF043 Mountain Home Air Force Base, Idaho (L&R, 2020). The objectives of the UFP-QAPP were to: 1) collect bulk surficial/exposed debris samples of suspect asbestos containing materials (ACM) from areas of the LF043 site where ACM was not previously identified and 2) conduct asbestos air sampling from the perimeter of the landfill fence line. L&R's Inspectors, John Mears and Eric Brinza, collected representative samples of various types of observed suspect bulk ACM on June 3, 2020 and June 4, 2020. L&R collected air samples at LF043 on July 21, 2020, July 28, 2020, and August 4, 2020.

### Section 1.0 Project Information

<b>Submitted to:</b>	U.S. Army Corps of Engineers (USACE) Seattle District
<b>Prepared by</b>	The L&R Group (L&R) on behalf of FPM Remediations, Inc. (FPM)
<b>Location:</b>	Mountain Home Air Force Base (MHAFB) Installation Restoration Program (IRP) Site Landfill 43 (LF043) Site, Mountain Home, Idaho
<b>Given Access By:</b>	Timothy Wood, USACE

### Section 2.0 Requested Project Scope

The scope of this project includes a Supplemental Investigation of Asbestos Debris Disposal at Landfill 43 to: 1) determine the nature and extent of ACM through a visual survey, and sampling and analysis of suspect material on the surface and 2) determine the nature and extent of ACM potentially being transported off-site by wind. Specifically, the project scope included:

- A visual survey within the highlighted area specified by Figure 4 in the UFP-QAPP for the presence of exposed suspect ACM.
- Bulk sampling of 50 suspect ACM to identify if asbestos was present within the highlighted area specified by Figure 4 in the UFP-QAPP.
- Submission of bulk samples to a laboratory accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) to be analyzed by polarized light microscopy (PLM) in accordance with the United States Environmental Protection Agency (EPA) 600/R-93/116 (EPA, 1993).
- Collection of 39 air samples along the perimeter of LF043, collected during three separate sampling events.
- Submission of air samples to a laboratory accredited under the NVLAP to be analyzed in accordance with the International Organization for Standardization (ISO) Method 10312 – *Ambient Air – Determination of asbestos fibers – Direct transfer transmission electron microscopy (TEM)* method standards (ISO, 2019). Analytical sensitivity will be to 0.0003 structures per cubic centimeter (s/cc) converted to fibers per cubic centimeter (f/cc) as specified in the UFP-QAPP. The units of concentration employed in the current EPA approach for estimating cancer risks are f/cc as measured by phase contrast microscopy (PCM) or PCM-equivalent (PCMe) concentrations measured using TEM. According to the Method ISO10312:2019, a PCMe fiber is defined as “any particle with parallel or stepped sides, with an aspect ratio of 3:1 or greater, longer than 5 µm, and which has a diameter between 0.2 µm and 3.0 µm. For chrysotile, PCMe fibers will always be bundles”. The EPA residential risk level of  $1 \times 10^{-4}$  for cancer risk is less than 0.001 f/cc.
- Submission of a data summary report to include a summary of the sample collection activities as specified in the UFP-QAPP, analytical results with figures and tables, and a comparison of the results to the applicable asbestos levels.



### Section 3.0 Project Description and Site Characteristics

MHAFB is an active United States Department of Defense (DoD) facility located approximately 10 miles southwest of Mountain Home, Idaho. Landfill 043 (LF043) is located along the east fence line of MHAFB, approximately 0.5 miles south of the northeast corner of the base. Landfill 043 contained exposed and buried ACM and other construction related debris throughout the 70-acre footprint.

MHAFB is located in the southwestern part of the Mountain Home Plateau within the 4,800-square mile western Snake River Plain. The Snake River Plain is a topographically flat, bow-shaped structural depression that extends approximately 130 miles in a northwest to southwest direction and is up to 50 miles wide. The topography of LF043 is generally flat with an irregular surface throughout the basalt boulder area.

The LF043 site sits along the eastern boundary of MHAFB (Figure 1). The land use at the site is designated as industrial use. Residential neighborhoods are located south, west, and northwest of LF043. LF043 is fenced with restricted access.

The majority of debris at the site is concrete, asphalt, basalt rocks, and basalt boulders. A Remedial Investigation/Feasibility Study (RI/FS) conducted by AECOM Technical Services, Inc. (AECOM) in 2017 identified other materials dumped on site including empty containers, transite/concrete pipe, automobile parts, metallic solid waste, and other miscellaneous solid waste. A concentrated area of ACM was identified in the east-central landfill area, with scattered suspect ACM throughout the landfill. Asbestos was identified in all of the sampled transite pipes, gaskets, pipe coatings, roofing and vinyl floor tiles (AECOM, 2017).

### Section 4.0 Inspection and Sampling Procedures

The bulk asbestos sampling conducted at LF043 included the following:

- Collection of 50 suspect ACM at the site on June 3, 2020 and June 4, 2020 from the shaded area specified in Figure 4 of the UFP-QAPP and as directed onsite by USACE personnel. Representative samples of various types of observed suspect ACM (e.g., transite pipe, roofing, vinyl floor tiles, etc.) were collected. Samples were submitted to International Asbestos Testing Laboratories (IATL), a NVLAP accredited laboratory in Mount Laurel Township, New Jersey, for analysis by PLM in accordance with EPA 600/R-93/116.
- Bulk samples were identified based on field observations of surficial/exposed debris indicative of potential ACM. The samples were photographed in place (before sample collection), the condition of each sample was noted, and the type of material sampled, and if the material was friable or non-friable. Global Positioning System (GPS) data of each sample location was collected. Refer to Figure 2 for bulk asbestos results and sample locations. Appendices A, B, C, D, and E provide the bulk sampling data sheets, sample photographs, sampling location photographs, sample descriptions, and results, respectively.

The perimeter asbestos air sampling and analysis included the following:

- Weather conditions were evaluated on the day prior to each air sampling event.
- Three sampling events were conducted over a three-week period, beginning July 21, 2020. A total of 13 air samples were collected during each sampling event. Air samples were placed along the perimeter landfill fence line and were collected as such: one air sample in an upgradient wind direction, four samples along the eastern landfill boundary, six air samples along the western landfill boundary, and one air sample on both the north and south landfill boundaries. Refer to Figure 3 for perimeter air sample locations. Appendix F provides the air sample location coordinates.
- For the sampling event conducted July 21, 2020 and July 22, 2020: Sampling equipment was placed and began collecting on July 21, 2020. Sampling was completed for the sample set on July 22, 2020. The samples were picked up from the site on July 22, 2020.
- For the sampling event conducted July 28, 2020 and July 29, 2020: Sampling equipment was placed and began collecting on July 28, 2020. All but one sample finished collecting on July 28, 2020 and the remaining sample finished collecting on July 29, 2020. The samples were picked up from the site on July 29, 2020.
- For the sampling event conducted August 4, 2020: Sampling equipment was placed and began collecting on August 4, 2020. Sampling was completed for the sample set on August 4, 2020. The samples were picked up from the site on August 5, 2020.
- Air samples were collected using high volume, programable sampling pumps supplied by SKC, Inc. The pumps were programed to collect samples at 7 liters per minute for a duration of 687 minutes (i.e., 11 hours and 27 minutes). The total sample volume for each of the perimeter samples was 4809 liters. Cassettes with 0.8 µm pore size, known as PCM cassettes, were used for sample collection.



- Quality assurance/quality control (QA/QC) samples included two field blanks per sampling event. The field blanks were collected by removing the top covers from the field blank cassettes and storing them and the cassettes in a clean area, in a closed bag, during sampling. The top covers were replaced once sampling was completed. Field blank samples were submitted to iATL with fabricated sampling times and volumes to remain “blind” samples.
- The air samples were submitted to iATL with a laboratory supplied COC. The samples were submitted with a Client Sample number of 01 to 15 for each sampling event for L&R’s use. Please see the key located in Appendix G. The Sampling Date/Time on the Sample Log of the COC for the July 21, 2020/July 22, 2020 sampling event was marked as July 21, 2020. The Sampling Date/Time on the Sample Log of the COC for the July 28, 2020/July 29, 2020 sampling event was marked as July 29, 2020. The Sampling Date/Time on the Sample Log of the COC for the August 4, 2020 sampling event was marked as August 5, 2020, the date of the sample pickup.
- Samples and blanks were submitted to iATL and were analyzed in accordance with the ISO Method 10312 – *Ambient Air – Determination of asbestos fibers – Direct transfer transmission electron microscopy method standards*. The analytical sensitivity was to 0.0003 structures per cubic centimeter (s/cc).

L&R performed the visual survey, sampling, and testing in accordance with current acceptable industry guidelines, and applicable Federal, State, and Local regulations as outlined in the following:

- 29 Code of Federal Regulations (CFR) 1926, Section 1101, Asbestos.
- Portions of the Asbestos Hazard Emergency Response Act (AHERA), the Asbestos Schools Hazard Abatement Reauthorization Act (ASHARA), and EPA Model Accreditation Program (MAP) as defined by 40 CFR 763; Subpart E, Appendix C.
- 40 CFR 61, EPA National Emission Standards for Hazardous Air Pollutants (NESHAP).
- 40 CFR 261, Resource Conservation and Recovery Act (RCRA).

Laboratory reports are provided in Appendix E and G, respectively, for the bulk sampling and air sampling. A data usability evaluation was conducted by FPM in accordance with the UFP-QAPP and the following EPA guidelines:

- EPA, 2016. PLM Validation Process Guidelines for Asbestos Data Review. October.
- EPA, 2016. TEM Validation Process Guidelines for Asbestos Data Review. October.

The data usability report is provided in Appendix H.

## Section 5.0 Findings

This section presents the results of the asbestos bulk sampling and perimeter air monitoring. Sections 5.1 and 5.2, summarize the bulk materials identified as ACM and non-ACM, respectively. Bulk sampling locations and results are shown on Figure 2. Perimeter air monitoring results are summarized in Section 5.3, and the sampling locations are shown on Figure 3.



**Table 5.1 Summary of Materials Identified as ACM**

L&R Sample Number	iATL #	Date Collected	Material	Location	Condition Observed	Asbestos %
LF043-B-12-NE-1	7020404	6/3/2020	Transite-Like Cement Product	Northeast Quadrant	Non-friable, Damaged	20% Chrysotile
LF043-B-28-NW-2	7020420	6/4/2020	Transite Pipe	Northwest Quadrant	Non-friable, Damaged	20% Chrysotile 10% Amosite 10% Crocidolite
LF043-B-29-NW-2	7020421	6/4/2020	Transite Pipe	Northwest Quadrant	Non-friable, Damaged	20% Chrysotile 10% Amosite 10% Crocidolite
LF043-B-31-NW-2	7020423	6/4/2020	Paper-Like Unknown Fibrous Material	Northwest Quadrant	Friable, Damaged	30% Chrysotile
LF043-B-35-NW-2	7020427	6/4/2020	Black Mastic (on Tile)	Northwest Quadrant	Non-friable, Damaged	4.9% Chrysotile
LF043-B-36-NW-2	7020428	6/4/2020	Transite Pipe	Northwest Quadrant	Non-friable, Damaged	20% Chrysotile 20% Crocidolite
LF043-B-38-NW-2	7020430	6/4/2020	Transite	Northwest Quadrant	Non-friable, Damaged	20% Chrysotile 20% Crocidolite
LF043-B-39-NW-2	7020431	6/4/2020	Transite	Northwest Quadrant	Non-friable, Damaged	20% Chrysotile 20% Crocidolite
LF043-B-41-SE-2	7020433	6/4/2020	Blue Tile	Southeast Quadrant	Non-friable, Damaged	2.4% Chrysotile
LF043-B-42-SE-2	7020434	6/4/2020	Transite Pipe	Southeast Quadrant	Non-friable, Damaged	20% Chrysotile 20% Crocidolite
LF043-B-45-SE-2	7020437	6/4/2020	Transite	Southeast Quadrant	Non-friable, Damaged	20% Chrysotile

**Note:**

The material left in the landfill has the potential to break/weather and become friable.





**Table 5.2 Summary of Materials Identified as Non-ACM**

L&R Sample Number	iATL #	Date Collected	Sample Description	Sample Location
LF043-B-01-NE-1	7020393	6/3/2020	Ceramic-Like	Northeast Quadrant
LF043-B-02-NE-1	7020394	6/3/2020	Black Rubber-Like Material	Northeast Quadrant
LF043-B-03-NE-1	7020395	6/3/2020	Fiberboard	Northeast Quadrant
LF043-B-04-NE-1	7020396	6/3/2020	Insulation	Northeast Quadrant
LF043-B-05-NE-1	7020397	6/3/2020	Black Rubber/Plastic Pipe	Northeast Quadrant
LF043-B-06-NE-1	7020398	6/3/2020	Foam	Northeast Quadrant
LF043-B-07-NE-1	7020399	6/3/2020	Fiberboard	Northeast Quadrant
LF043-B-08-NE-1	7020400	6/3/2020	Vinyl Tile	Northeast Quadrant
LF043-B-09-NE-1	7020401	6/3/2020	Plastic Pipe	Northeast Quadrant
LF043-B-10-NE-1	7020402	6/3/2020	Foam	Northeast Quadrant
LF043-B-11-NE-1	7020403	6/3/2020	Plastic Pipe	Northeast Quadrant
LF043-B-13-NE-1	7020405	6/3/2020	Plaster-Like Material	Northeast Quadrant
LF043-B-14-NE-1	7020406	6/3/2020	Asphalt	Northeast Quadrant
LF043-B-15-NE-1	7020407	6/3/2020	Metal Pipe with Tar-Like Coating	Northeast Quadrant
LF043-B-16-NE-1	7020408	6/3/2020	Black Plastic	Northeast Quadrant
LF043-B-17-NE-1	7020409	6/3/2020	Painted Fiberboard	Northeast Quadrant
LF043-B-18-NE-1	7020410	6/3/2020	Foam with Aluminum Insulation	Northeast Quadrant
LF043-B-19-NE-1	7020411	6/3/2020	Mastic on Brick	Northeast Quadrant
LF043-B-20-NE-1	7020412	6/3/2020	Ceramic Tile	Northeast Quadrant
LF043-B-21-NW-2	7020413	6/4/2020	Plastic	Northwest Quadrant
LF043-B-22-NW-2	7020414	6/4/2020	Roofing Shingle	Northwest Quadrant
LF043-B-23-NW-2	7020415	6/4/2020	Fibrous Material with Mastic	Northwest Quadrant
LF043-B-24-NW-2	7020416	6/4/2020	Fibrous Plastic	Northwest Quadrant
LF043-B-25-NW-2	7020417	6/4/2020	Vinyl Tile-Like Material	Northwest Quadrant
LF043-B-26-NW-2	7020418	6/4/2020	PVC Pipe	Northwest Quadrant
LF043-B-27-NW-2	7020419	6/4/2020	Roofing Shingle	Northwest Quadrant
LF043-B-30-NW-2	7020422	6/4/2020	Foam	Northwest Quadrant
LF043-B-32-NW-2	7020424	6/4/2020	Foam Insulation with Aluminum	Northwest Quadrant
LF043-B-33-NW-2	7020425	6/4/2020	Plastic Tubing	Northwest Quadrant
LF043-B-34-NW-2	7020426	6/4/2020	Plastic	Northwest Quadrant
LF043-B-37-NW-2	7020429	6/4/2020	Brown Plastic Tubing	Northwest Quadrant
LF043-B-40-NW-2	7020432	6/4/2020	Mesh Tape	Northwest Quadrant
LF043-B-43-SE-2	7020435	6/4/2020	Laminate	Southeast Quadrant
LF043-B-44-SE-2	7020436	6/4/2020	Pipe Wrap	Southeast Quadrant
LF043-B-46-SW-2	7020438	6/4/2020	Insulation with Aluminum	Southwest Quadrant
LF043-B-47-SW-2	7020439	6/4/2020	Red Brick-Like Material	Southwest Quadrant
LF043-B-48-SW-2	7020440	6/4/2020	Cement-Like Material	Southwest Quadrant
LF043-B-49-SW-2	7020441	6/4/2020	Blue Tile	Southwest Quadrant
LF043-B-50-SW-2	7020442	6/4/2020	Ceramic-Like Material	Southwest Quadrant



**Table 5.3 Summary of Perimeter Asbestos Air Sampling**

Sample Number	L&R ID # on COC	iATL #	Date Collected	Sample Location	Asbestos Type Identified	Asbestos Concentration (f/cc)
LF043-A-01-SE-1	01	7040574	7/21/2020 - 7/22/2020	Southern Landfill Boundary	None Detected	<0.000293
LF043-A-02-SE-1	02	7040575	7/21/2020 - 7/22/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-03-NE-1	03	7040576	7/21/2020 - 7/22/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-04-NE-1	04	7040577	7/21/2020 - 7/22/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-05-NE-1	05	7040578	7/21/2020 - 7/22/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-06-NW-1	06	7040579	7/21/2020 - 7/22/2020	Northern Landfill Boundary	None Detected	<0.000293
LF043-A-07-NW-1	07	7040580	7/21/2020 - 7/22/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-08-NW-1	08	7040581	7/21/2020 - 7/22/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-09-NW-1	09	7040582	7/21/2020 - 7/22/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-10-NW-1	10	7040583	7/21/2020 - 7/22/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-11-SW-1	11	7040584	7/21/2020 - 7/22/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-12-SW-1	12	7040585	7/21/2020 - 7/22/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-13-N-1	13	7040586	7/21/2020 - 7/22/2020	Upgradient Wind Direction	None Detected	<0.000293
LF043-A-14-B-1	14	7040587	7/21/2020 - 7/22/2020	Field Blank	None Detected	<0.000293
LF043-A-15-B-1	15	7040588	7/21/2020 - 7/22/2020	Field Blank	None Detected	<0.000293
LF043-A-16-SE-2	01	7042315	7/28/2020	Southern Landfill Boundary	None Detected	<0.000293
LF043-A-17-SE-2	02	7042316	7/28/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-18-NE-2	03	7042317	7/28/2020	Eastern Landfill Boundary	1 Structure Chrysotile	<0.000293
LF043-A-19-NE-2	04	7042318	7/28/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-20-NE-2	05	7042319	7/28/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-21-NW-2	06	7042320	7/28/2020	Northern Landfill Boundary	None Detected	<0.000293
LF043-A-22-NW-2	07	7042321	7/28/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-23-NW-2	08	7042322	7/28/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-24-NW-2	09	7042323	7/28/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-25-NW-2	10	7042324	7/28/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-26-SW-2	11	7042325	7/28/2020	Western Landfill Boundary	None Detected	<0.000293





**Table 5.3 Summary of Perimeter Asbestos Air Sampling (Continued)**

LF043-A-27-SW-2	12	7042326	7/28/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-28-N-2	13	7042327	7/28/2020	Upgradient Wind Direction	None Detected	<0.000293
LF043-A-29-B-2	14	7042328	7/28/2020	Field Blank	None Detected	<0.000293
LF043-A-30-B-2	15	7042329	7/28/2020 - 7/29/2020	Field Blank	None Detected	<0.000293
LF043-A-31-SE-3	01	7045849	8/4/2020	Southern Landfill Boundary	None Detected	<0.000293
LF043-A-32-SE-3	02	7045850	8/4/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-33-NE-3	03	7045851	8/4/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-34-NE-3	04	7045852	8/4/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-35-NE-3	05	7045853	8/4/2020	Eastern Landfill Boundary	None Detected	<0.000293
LF043-A-36-NW-3	06	7045854	8/4/2020	Northern Landfill Boundary	None Detected	<0.000293
LF043-A-37-NW-3	07	7045855	8/4/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-38-NW-3	08	7045856	8/4/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-39-NW-3	09	7045857	8/4/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-40-NW-3	10	7045858	8/4/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-41-SW-3	11	7045859	8/4/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-42-SW-3	12	7045860	8/4/2020	Western Landfill Boundary	None Detected	<0.000293
LF043-A-43-N-3	13	7045861	8/4/2020	Upgradient Wind Direction	None Detected	<0.000293
LF043-A-44-B-3	14	7045862	8/4/2020	Field Blank	None Detected	<0.000293
LF043-A-45-B-3	15	7045863	8/4/2020	Field Blank	None Detected	<0.000293



## Section 6.0 Summary

L&R conducted the bulk and air sampling events at LF043 on June 3, 2020, June 4, 2020, July 21, 2020/July 22, 2020, July 28, 2020/July 29, 2020, and August 4, 2020. Weather conditions were evaluated on the day prior to each air sampling event. Each sampling event was preceded by dry weather for several days. Wind conditions for each sampling event were noted from northwest to southeast on each sampling day. In addition, the following historical weather data was provided by wunderground.com:

- June 3, 2020: High 88 degrees Fahrenheit (°F), low 59 °F. Dew point 40.18 °F. Max wind speed 13 miles per hour (mph) and average of 6.6 mph.
- Average wind speed for June was 7.65 mph.
- July 21, 2020: High 99 °F, low 61 °F. Dew point 37.30 °F. Max wind speed 13 mph and average of 5.3 mph.
- July 28, 2020: High 94 °F, low 69 °F. Dew point 46.86 °F. Max wind speed 26 mph and average of 10.9.
- Average wind speed for July was 7.19 mph.
- August 4, 2020: High 94 °F, low 64 °F. Dew point 33.00 °F. Max wind speed 13 mph and average 6.5 mph.
- Average wind speed for August was 7.15 mph.

Bulk asbestos sampling and analysis summary:

- On June 3, 2020 and June 4, 2020 representative samples of observed suspect ACM were collected from the area specified in Figure 4 of the UFP-QAPP. In addition, during the June 3, 2020 sampling event, USACE representatives, Thomas Kendall and Timothy Wood, instructed L&R to collect 20 samples from each of the NE and NW quadrants and 5 samples from each of the SE and SW quadrants. See Figure 2 for bulk sample locations and results. Suspect materials collected included wallboard, flooring, roofing, insulation, and piping materials. The samples were submitted to iATL for analysis by PLM according to EPA 600/R-93/116.
- Eleven of the samples collected for analysis were found by laboratory analysis, to be ACM. These results are summarized in Section 5.1. A paper-like material, which appeared to be a type of duct wrap, was found to be ACM. All transite materials collected for analysis, including paneling and piping, were confirmed to be ACM. Of the seven flooring materials collected, one floor tile and one mastic on floor tile were found to be ACM. The materials identified as ACM exceeded the project action limit of 1%. Appendices A, B, C, and E provide the bulk sampling data sheets, sample photographs, sampling location photographs, and laboratory report, respectively.
- Materials found to be non-ACM included wallboard, flooring, roofing, insulation, plastic piping, and brick. These results are summarized in Section 5.2. Appendices A, B, C, and E provide the bulk sampling data sheets, sample photographs, sampling location photographs, and laboratory report, respectively.
- The 2017 RI/FS found concentrated areas of ACM in the east central landfill area, with scattered suspect ACM throughout the landfill. Asbestos was identified in transite pipes, gaskets, pipe coatings, roofing, and vinyl floor tiles. The RI bulk asbestos results are provided in Appendix I of this report (i.e., RI Figure 3-1, Figure 4-1, and Table 4-1).
- L&R collected suspect ACM from six locations not previously sampled that were found to be ACM.
  - Two out of the six materials found to be ACM, black mastic and a paper-like material, were materials that were not previously identified in the RI/FS.
  - L&R found five additional ACM located within the northern half of the NW Quadrant and one within the southern half.
  - L&R found one additional ACM located within the northern half of the NE quadrant and one within the southern half.
  - L&R found one additional ACM located within the northern half of the SW Quadrant.
  - L&R found two additional ACM located within the northern half of the SE Quadrant.

Perimeter asbestos air sampling and analysis summary:

- L&R's initial air sampling event was on June 3, 2020. L&R placed the pumps with sampling cassettes with 0.45 um pore size (TEM cassettes) programmed to collect at 7 liters/minute for 687 minutes. Upon returning to LF043 to collect the samples, L&R found that the pumps had stopped collecting at irregular times and had remaining sampling times. The error codes "Flow off," "Hold," and "Battery low" were displayed on the LED screen on each pump. L&R contacted SKC, the manufacturer of the pumps. On June 5, 2020 one pump was shipped to the SKC research and development center in Pennsylvania for troubleshooting tests. On June 10, 2020 SKC informed L&R that the source of the problem was likely a battery issue due to the age and capacity of the batteries. SKC continued to run troubleshooting tests on the sampling pump using both TEM and PCM cassettes. L&R received a new internal and external battery from SKC. After installation, L&R determined that reaching the target volume of 4800 liters, using a TEM cassette, was not achievable. L&R found that the target volume was



achieved when using the new batteries and external batteries with PCM cassettes. TEM cassettes have more resistance due to pore size. On June 17, 2020 FPM sent an email to Amy J. Baker, with the USACE regarding the results of the troubleshooting with the pumps using both TEM and PCM cassettes. On July 13, 2020, after determining that the use of PCM cassettes satisfied the project requirements, L&R received approval from USACE to continue the perimeter air sampling.

- Three sampling events were conducted over a three-week period, on July 21, 2020/July 22, 2020, July 28, 2020/July 29, 2020, and August 4, 2020. A total of 13, 4809-liter air samples were collected during each sampling event.
- Air samples were collected from the perimeter of the landfill from the following locations: one air sample in an upgradient wind direction, four samples along the eastern landfill boundary, six air samples along the western landfill boundary, and one air sample on both the north and south landfill boundaries. Refer to Figure 3 for air sampling locations.
- QA/QC samples included two field blanks per sampling event.
- Samples were submitted to iATL and were analyzed using ISO Method 10312 with an analytical sensitivity of 0.0003 s/cc. ISO Method 10312 reports asbestos as s/cc or fibers/cc. The units of concentration employed in the current EPA approach for estimating cancer risks are fibers per cubic centimeter (f/cc) as measured by PCM or PCMe concentrations measured using TEM. The EPA residential risk level of  $1 \times 10^{-4}$  for cancer risk is less than 0.001 f/cc. See Appendix G for the air sample analysis reports.
- Sample LF043-A-18-NE-1, collected on July 28, 2020 along the eastern landfill boundary, was found to contain 1 structure of asbestos (identified as Chrysotile) which was a fiber 2  $\mu\text{m}$  in length, and was reported by the laboratory as 0.000293 s/cc. According to the Method ISO 10312:2019, a PCMe fiber is defined as "any particle with parallel or stepped sides, with an aspect ratio of 3:1 or greater, longer than 5  $\mu\text{m}$ , and which has a diameter between 0.2  $\mu\text{m}$  and 3.0  $\mu\text{m}$ . For chrysotile, PCMe fibers will always be bundles." Therefore, the corresponding result would be non-detect (ND) for PCMe fibers, and would be reported as < 0.000293 f/cc.
- None of the perimeter air samples exceeded the project action limit of 0.001 f/cc.

## Section 7.0 Non-Conformance/Corrective Action

The following are Non-Conformance/Correction Action items:

- A total of 13, 4809-liter air samples were collected during each sampling event. Air samples were submitted to iATL with laboratory supplied COCs. Samples were submitted to iATL with volumes of 4800 L. The actual volume collected for the air samples was 4809 Liters. iATL corrected these volumes for sample analysis.
- Quality assurance/quality control (QA/QC) samples included two field blanks per sampling event. Field blank samples were submitted to iATL with fabricated sampling times and volumes to remain "blind" samples. Field blank samples were reported by iATL as s/cc. S/cc is not applicable to field blanks samples.
- Samples submitted to iATL from the July 21, 2020/July 22, 2020 sampling event were assigned the sample placement date of July 21, 2020 for "Sampling Date/Time" on the COC.
- Samples submitted to iATL from the July 28, 2020/July 29, 2020 and August 4, 2020 sampling events were assigned the sample pickup dates of July 29, 2020 and August 5, 2020, respectively, for "Sampling Date/Time" on the COC.

## Section 8.0 References

AECOM Technical Services, Inc. (AECOM), 2017. Remedial Investigation / Feasibility Study at Asbestos Debris Disposal Landfill / Site LF043, Mountain Home Air Force Base, Idaho. March.

International Organization for Standardization (ISO), 2019. ISO Method 10312:2019 – *Ambient Air – Determination of asbestos fibers – Direct transfer transmission electron microscopy (TEM)* method standards. October.

The L&R Group (L&R), 2020. Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP) Asbestos and Air Sampling at LF043 Mountain Home Air Force Base, Idaho, under the U.S. Army Corps of Engineers (USACE) Seattle District, Contract Number W912DQ-19-D-1025, Delivery Order W912DW-19-F2158, Revision 3, May.

U.S. Environmental Protection Agency (EPA), 1993. Test Method 600, Method for Determination of Asbestos in Bulk Building Materials. June.



EPA, 2016. PLM Validation Process Guidelines for Asbestos Data Review. October.

EPA, 2016. TEM Validation Process Guidelines for Asbestos Data Review. October.



## Section 9.0 Glossary

<b>ACBM</b>	Asbestos Containing Building Materials (surfacing, TSI or miscellaneous ACM within a building).
<b>ACM</b>	Asbestos Containing Material containing greater than 1% asbestos.
<b>AHERA</b>	Asbestos Hazard Emergency Response Act of 1986.
<b>APR</b>	Air purifying respirator.
<b>ASHAA</b>	Asbestos School Hazard Abatement Act of 1984.
<b>Acoustical Material</b>	Material often containing asbestos, perlite, vermiculite, etc. applied to ceilings or walls to dampen sound.
<b>Action Level</b>	An OSHA standard for asbestos exposure. Action level means an airborne concentration of asbestos above which an employer must institute certain provisions (see 29 CFR 1926.58). The Action Level has been eliminated by OSHA as of October 1994 (see 29CFR 1926.1101).
<b>Adequately Wetted</b>	Sufficiently mixed or coated with water or an aqueous solution to prevent the release of particulates. If visible emissions are observed coming from asbestos containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.
<b>Air Plenum</b>	Space above a ceiling used for the circulation of air through a building.
<b>Air Samples</b>	Samples of airborne fibers taken by drawing air through a filter to trap the airborne fibers. Analyzed by PCM or electron microscopy.
<b>Amosite</b>	Brown asbestos, brittle fibers, high resistance to heat.
<b>Asbestos</b>	A term used to define a group of naturally occurring silicate minerals, occurring as parallel bundles of fibers, called "fibrils".
<b>Asbestos Management Plan</b>	A document to assist in administering the asbestos programs in a facility.
<b>Asbestosis</b>	A chronic disease during which the lungs become scarred as a result of a biological reaction to the inhalation of asbestos fibers.
<b>CFR</b>	Code of Federal Regulations.
<b>Category I Nonfriable ACM</b>	An asbestos containing packing, gasket, resilient floor covering, and asphalt roofing product containing more than 1 percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy.
<b>Category II Nonfriable ACM</b>	Any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
<b>Chrysotile</b>	White asbestos, fine silky fibers, flexible with high tensile strength.
<b>Competent Person</b>	A competent person is one capable of identifying existing asbestos hazards in the workplace and who has the authority to take a corrective action. Duties include establishing the negative-pressure enclosure, controlling entry and exit of all employees, etc. The competent person must be trained in all aspects of asbestos abatement and the contents of the OSHA asbestos standard.
<b>Condition Factors</b>	Describe the physical condition ACM.
<b>Control Options</b>	Methods of reducing or eliminating the exposure potential of asbestos-containing materials e.g. removal, enclosure, encapsulation, operations, and maintenance.
<b>Corrugated Paper</b>	A type of thermal insulation characterized by brown "cardboard box" type corrugated paper wrapped around pipes or applied in sheets to boilers and tanks. Usually contains woven asbestos with paper.
<b>Corrective Action</b>	An activity undertaken to reduce or eliminate the exposure potential of ACM: enclosure, encapsulation, removal, or operations and maintenance.
<b>Crawl Space</b>	The area of the building below the ground floor, but above the ground, often only a few feet high.
<b>Demolition</b>	The wrecking or taking out of any load-supporting structural member of a facility together with any related handling
<b>Doffing</b>	The process of taking off personal protective equipment.
<b>Donning</b>	The process of putting on personal protective equipment.
<b>EPA</b>	Environmental Protection Agency. The agency charged with implementing AHERA.
<b>Emergency Renovation</b>	A renovation operation that was not planned, but results from a sudden, unexpected event. This term includes operation necessitated by nonroutine failures of equipment.
<b>Encapsulation</b>	Treatment of ACM with a material that surrounds or embeds the asbestos fibers in an adhesive matrix to prevent the release of fibers as the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).
<b>Enclosure</b>	Construction of an airtight, impermeable, permanent barrier around ACM to control the release of fibers into the air.
<b>Exposure</b>	A quantification of the population at risk and the magnitude and duration of their exposure.





## Section 9.0 Glossary

<b>Facility</b>	Any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function.
<b>Facility Component</b>	Any Pipe, duct, boiler, tank, reactor, turbine, or furnace at or in a facility; or any structural member of a facility.
<b>f/cc</b>	Fibers per cubic centimeter. A measurement to express the level of fibers in the air.
<b>Fiber Release Episode</b>	Any uncontrolled or unintentional disturbance of ACM resulting in visible emissions.
<b>Fibrils</b>	A small bundle of individual fibers.
<b>Fireproofing</b>	Material sprayed onto building structural members to prevent or retard their loss of strength in case of fire. Often contains asbestos.
<b>Fit-Testing</b>	The act of ensuring a respirator has a proper seal to the wearers face and works properly.
<b>Friable</b>	Easily reduced to powder by hand pressure when dry.
<b>Friable Asbestos Material</b>	Any material containing more than 1 percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, can be crumbled pulverized, or reduced to powder by hand pressure.
<b>Functional Space</b>	A room or area designated by a person accredited to prepare management plans.
<b>Glove Bag</b>	A device used to remove small sections of asbestos.
<b>Grinding</b>	Means to reduce to powder or small fragments and includes mechanical chipping or drilling.
<b>HEPA</b>	High Efficiency Particulate Air.
<b>Hazard</b>	A circumstance, mechanism, or event which was the potential to create injury.
<b>Homogeneous Area</b>	An area of asbestos-containing material where the material is consistent in texture, color, and age.
<b>Inadvertent Contamination</b>	The disturbance of asbestos containing products not caused intentionally by the parties involved in the project.
<b>In Poor Condition</b>	Means the binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.
<b>Inspection</b>	The process of locating ACM, determining its condition, and reporting the results.
<b>LEA</b>	Local Education Agency, generally a school district.
<b>Latency</b>	Period before the presence of a disease is manifested by symptoms.
<b>Liability</b>	Legally bound or obligated.
<b>Magnesia</b>	A type of thermal insulation, generally white fibrous material pre-formed into shaped pieces or as bricks, often contains asbestos.
<b>Mechanical Area</b>	An area of building not normally accessed by the public containing air handling, air conditioners, heat exchanges, tanks, pipes, or other mechanical equipment.
<b>Mechanical System</b>	The heating, ventilation, air conditioning, and plumbing components of a facility.
<b>Medical Surveillance Program</b>	A program to ensure workers are physically and psychologically able to wear a respirator and perform asbestos activities.
<b>Miscellaneous Material</b>	Interior building material on structural components, structural members, or fixtures, that does not include thermal or surfacing material.
<b>Mudded Joint Fittings</b>	Plaster compound packed onto pipe joints and around valves, pumps, elbows, tees for thermal insulation. Often contains asbestos.
<b>NESHAP</b>	National Emission Standards for Hazardous Air Pollutants.
<b>NIOSH</b>	National Institute of Occupational Safety and Health. The agency who sets standards for respirators and other protective equipment.
<b>Negative Air</b>	A process by which air is continually removed from the work area to keep the air pressure in the work area less than the air pressure outside the work area. A registered trademark.
<b>Nonfriable ACM</b>	Means any material containing more than 1 percent asbestos as determined using the method specified in appendix A, subpart F, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
<b>Not Part of Scope</b>	Not part of the planned work for the project.
<b>O &amp; M</b>	Operations and Maintenance.
<b>OSHA</b>	Occupational Safety and Health Administration. The agency responsible for protecting worker health and safety.
<b>Outside Air</b>	The air outside buildings and structures.
<b>Outside of Scope</b>	Something not factored in the planned work for the project.



## Section 9.0 Glossary

<b>Owner/Operator Demolition or Renovation</b>	Means any person who owns, leases, operates, controls, or supervised the facility being demolished. or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.
<b>PAPR</b>	Powered Air Purifying Respirator.
<b>PCM</b>	Phase Contrast Microscopy. A method used to analyze air samples for the presence of fibers.
<b>PEL</b>	Permissible Exposure Limit, a level of airborne asbestos above which no employee shall be exposed. The PEL is 0.1 f/cc of air as an 8-hour time-weighted average (see 29 CFR 1926.1101).
<b>PLM</b>	Polarized Light Microscopy. A method used to analyze bulk samples for the presence of asbestos.
<b>Packing</b>	Material applied to tanks, boilers, ducts, air handlers for thermal insulation. Often contains asbestos.
<b>Planned Renovation</b>	A renovation operation, or a number of such options, in which the amount of friable asbestos material that will be removed or stripped within a given period of time can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.
<b>Presumed Asbestos Containing Material (PACM)</b>	All TSI, Surfacing & resilient flooring in buildings construction prior to 1981, must be presumed to be ACM (PACM), and must be treated as ACM.
<b>Project Scope</b>	The planned work for the project.
<b>RACM</b>	Regulated Asbestos Containing Materials (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces, expected become friable in the course of demolition, renovation or removal operations regulated by this subpart.
<b>Regulated Areas</b>	Areas that exceed or may exceed airborne concentrations beyond permissible exposure limits of 0.1 f/cc.
<b>Reinspection</b>	A periodic reevaluation of the ACM over a regular time period.
<b>Removal</b>	Taking out or stripping of substantially all ACM from a damage area, functional space, or homogeneous area.
<b>Renovation</b>	Altering in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.
<b>Repair</b>	Returning damaged ACM to an undamaged condition or to an intact state so as to contain fiber release.
<b>Respiratory Protection Program</b>	A program to provide the information, training, and equipment necessary for proper respiratory protection while working with ACM.
<b>Response Action</b>	A method, including removal, encapsulation, enclosure, repair, and operation and maintenance, that protects human health and the environment from friable ACBM.
<b>Routine Maintenance Area</b>	An area, such as a boiler room or mechanical room, not normally frequented by the public in which maintenance employees or contract workers regularly conduct maintenance activities.
<b>SEM</b>	Scanning Electron Microscopy. A method to analyze air samples for the presence of asbestos.
<b>Salient</b>	A limited area of significantly different material condition within a homogeneous area.
<b>Scope Area</b>	The specific location on the property that the work is to be performed.
<b>Service Personnel</b>	People engaged in repair, maintenance, and/or custodial activities.
<b>Structural System</b>	The system of beams, walls, piers, and such that supports a building.
<b>Surfacing Material</b>	Material in a building that is either sprayed-on, troweled-on, or otherwise applied to surfaces such as acoustical plaster on ceilings and fireproofing material on structural members, or other materials used for acoustical, fireproofing, or other purposes. Often contains asbestos.
<b>Symbols</b>	Drawn figures which represent real objects. Symbols are the "short-hand" of architectural and mechanical drawings.
<b>TEM</b>	Transmission Electron Microscopy. A method to analyze air samples or bulk samples for the presence of asbestos.
<b>TSCA</b>	Toxic Substances Control Act.
<b>TWA</b>	Time Weighted Average. An average concentration of material over a set period of time.
<b>Thermal System Insulation</b>	Material in a building applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior mechanical components to prevent heat loss or gain, or water condensation, or for any other purpose.
<b>Tradesmen</b>	People engaged in the construction trade, i.e. electricians, plumbers, carpenters, painters, etc.
<b>"Tyvek"</b>	Brand name of DuPont for a disposable clothing worn during asbestos work.
<b>Visible Emissions</b>	Any emissions containing particulate asbestos material that area visually detectable without the aid of instruments.
<b>Wet Cleaning</b>	A cleaning technique where the material is kept wet and/or wet towels or mops are used to reduce the potential for material becoming airborne.
<b>Wrapped Paper</b>	A type of thermal insulation characterized by layers of Kraft paper wrapped around pipes. There is usually a layer of woven asbestos paper or "tar" paper imbedded with asbestos.



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<b>Packing</b>	Material applied to tanks, boilers, ducts, air handlers for thermal insulation. Often contains asbestos.
<b>Planned Renovation</b>	A renovation operation, or a number of such options, in which the amount of friable asbestos material that will be removed or stripped within a given period of time can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.
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<b>Regulated Areas</b>	Areas that exceed or may exceed airborne concentrations beyond permissible exposure limits of 0.1 f/cc.
<b>Reinspection</b>	A periodic reevaluation of the ACM over a regular time period.
<b>Removal</b>	Taking out or stripping of substantially all ACM from a damage area, functional space, or homogeneous area.
<b>Renovation</b>	Altering in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.
<b>Repair</b>	Returning damaged ACM to an undamaged condition or to an intact state so as to contain fiber release.
<b>Respiratory Protection Program</b>	A program to provide the information, training, and equipment necessary for proper respiratory protection while working with ACM.
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<b>Routine Maintenance Area</b>	An area, such as a boiler room or mechanical room, not normally frequented by the public in which maintenance employees or contract workers regularly conduct maintenance activities.
<b>SEM</b>	Scanning Electron Microscopy. A method to analyze air samples for the presence of asbestos.
<b>Salient</b>	A limited area of significantly different material condition within a homogeneous area.
<b>Scope Area</b>	The specific location on the property that the work is to be performed.
<b>Service Personnel</b>	People engaged in repair, maintenance, and/or custodial activities.
<b>Structural System</b>	The system of beams, walls, piers, and such that supports a building.
<b>Surfacing Material</b>	Material in a building that is either sprayed-on, troweled-on, or otherwise applied to surfaces such as acoustical plaster on ceilings and fireproofing material on structural members, or other materials used for acoustical, fireproofing, or other purposes. Often contains asbestos.
<b>Symbols</b>	Drawn figures which represent real objects. Symbols are the "short-hand" of architectural and mechanical drawings.
<b>TEM</b>	Transmission Electron Microscopy. A method to analyze air samples or bulk samples for the presence of asbestos.
<b>TSCA</b>	Toxic Substances Control Act.
<b>TWA</b>	Time Weighted Average. An average concentration of material over a set period of time.
<b>Thermal System Insulation</b>	Material in a building applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior mechanical components to prevent heat loss or gain, or water condensation, or for any other purpose.
<b>Tradesmen</b>	People engaged in the construction trade, i.e. electricians, plumbers, carpenters, painters, etc.
<b>"Tyvek"</b>	Brand name of DuPont for a disposable clothing worn during asbestos work.
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<b>Wet Cleaning</b>	A cleaning technique where the material is kept wet and/or wet towels or mops are used to reduce the potential for material becoming airborne.
<b>Wrapped Paper</b>	A type of thermal insulation characterized by layers of Kraft paper wrapped around pipes. There is usually a layer of woven asbestos paper or "tar" paper imbedded with asbestos.



## FIGURES

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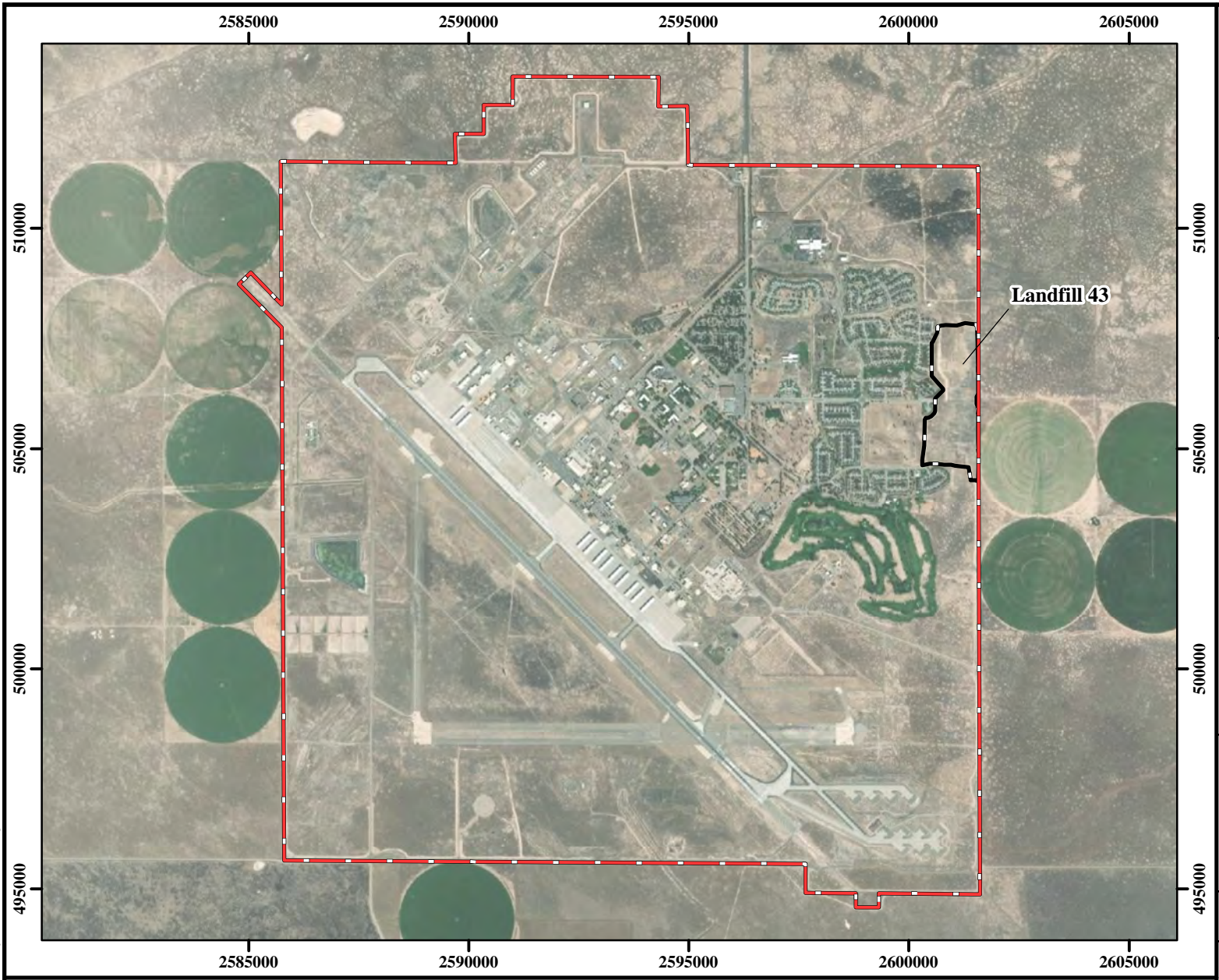


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Figure 1: Landfill 43 Site Location - 2020

Path: Y:\GIS\_Projects\Mountain\_Home\Projects\Asbestos\_Removal\Fig\_1\_Site\_Loc.mxd



**Key Features**

- Base Boundary
- Approximate Site Boundary

## Mountain Home Air Force Base, Idaho

### FIGURE 1

### Landfill 43 Site Location



**FPM** Remediations, Inc.  
*An Olgosorkin Company*

2020


**NOTES:**

1. Revision Date: 8/31/2020.

**Coordinate System:** NAD 1983 StatePlane Idaho West FIPS 1103 Feet  
**Projection:** Transverse Mercator  
**Datum:** North American 1983  
**Units:** Foot US  
**Service Layer Credits:** Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
**Basemap Date:** 9/5/2018

0 1,000 Meters

0 3,400 Feet





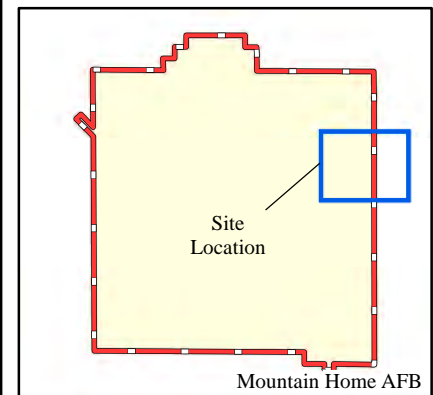
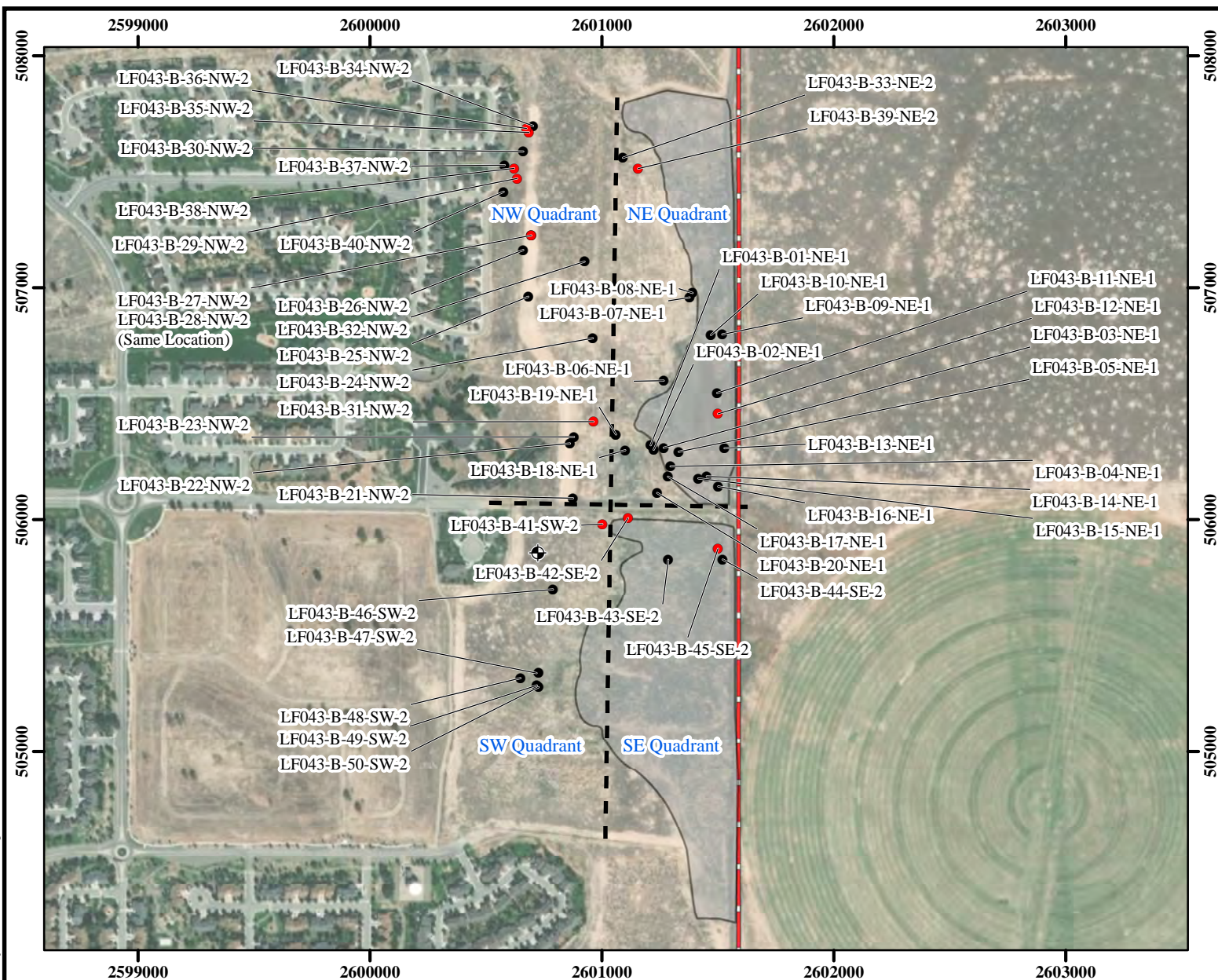
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**Figure 2: LF043 Bulk Asbestos Sample Locations and Results - 2020**



Path: Y:\GIS Projects\Mountain Home\Projects\Asbestos Removal\Fig 2\_LF043 Bulk Asbestos Results\_2020.mxd



### Key Features

- Asbestos Detected
- No Asbestos
- Well
- Quadrant Boundary
- Basalt Boulder Area
- Base Boundary

Mountain Home  
Air Force Base, Idaho

## FIGURE 2

LF043  
Bulk Asbestos Sample  
Locations and Results - 2020



FPM Remediations, Inc.  
An Algorika Company

2020

### NOTES:

1. RI Sampling Results from Figure 3-1 of the RI Report (AECOM, 2017).
2. Asbestos survey conducted on east-west transects at a 20-ft spacing, except in portions of the basalt area where a wider spacing was required due to obstructions.
3. Revision Date: 10/19/2020.

Coordinate System: NAD 1983 StatePlane Idaho West FIPS 1103 Feet  
Projection: Transverse Mercator  
Datum: North American 1983  
Units: Foot US  
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Basemap Date: 9/5/2018

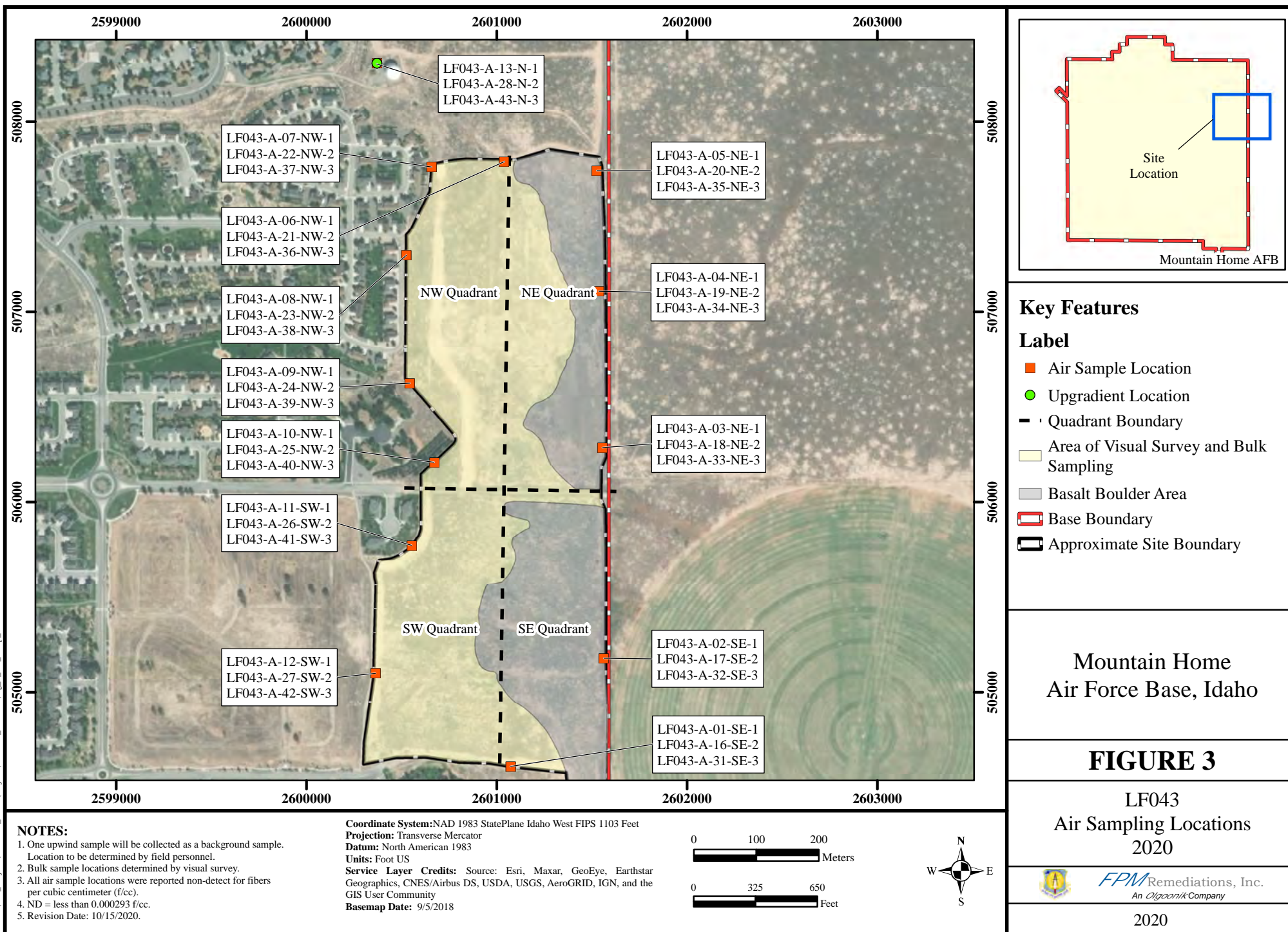




Figure 3: LF043 Air Sampling Locations - 2020



Path: Y:\GIS\Projects\Mountain\_Home\Projects\Asbestos\_Removal\Fig\_3\_Air\_Samp\_Loc.mxd





## **APPENDICES**

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**THE L&R GROUP**  
ENVIRONMENTAL + LABORATORIES

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208-813-6160  
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## Appendix A: Asbestos Bulk Sampling Data Sheets

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## Asbestos Bulk Sampling Data Sheet

### General Information

Project: MHAEB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-01-NE-1

### Sample Location & Description

Lat, Lon: 43.056053, -115.837764  
Broken Tile

### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-02-NE-1

#### Sample Location & Description

Lat, Lon: 43.056, -115.837718  
Black Rubber-like material

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Meers

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-03-NE-71

#### Sample Location & Description

Lat, Lon: 43.056024, -115.837553  
Fiberboard

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LE043-B-04-NE-1

#### Sample Location & Description

Lat, Lon: 43.055805, -115.837444  
Insulation

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6.3.20  
Sample Number: LF043-B-05-NE-1

#### Sample Location & Description

Lat/Lon: 43.055977, -115.83731  
Black Rubber/Plastic pipe

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-06-NE-1

#### Sample Location & Description

Lat, Lon: 43.056819, -115.837556  
Foam

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-07-NE-1

#### Sample Location & Description

Lat, Lon: 43.057803, -115.837141  
Fiberboard

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: ✓  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]





## Asbestos Bulk Sampling Data Sheet

### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-08-NE-1

### Sample Location & Description

Lat, Lon: 43.052882, -115.83709  
VFT

### Type of Material

Surfacing:

TSI: \_\_\_\_\_

Misc: ✓

### Condition

**Friability**

Friable: \_\_\_\_\_

Nonfriable: ✓

**Overall Rating**

Good: \_\_\_\_\_

Damaged: \_\_\_\_\_

Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_

Distributed: \_\_\_\_\_



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-09-NE-1

#### Sample Location & Description

Lat, Lon: 43.057365, -115.836612  
Plastic pipe

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage


Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Meas

Inspector Signature: 





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-10-NE-1

#### Sample Location & Description

Lat, Lon: 43.057361, -115.836794  
Foam

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-11-NE-1

#### Sample Location & Description

Lat, Lon: 43.056673, -115.836691  
Plastic pipe

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Meant

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-12-NE-1

#### Sample Location & Description

Lat, Lon: 43.056427, -115.83668  
Unknown - Transite like

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-13-NE-1

#### Sample Location & Description

Lat, Lon: 43.05602, -115.836573  
Unknown, plaster-like

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

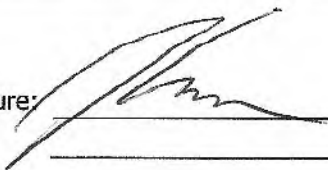
##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: 



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6.3.20  
Sample Number: LF043-B-14-NE-1

#### Sample Location & Description

Lat, Lon: 43.055685, -115.836863  
Asphalt

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-15-NE-1

#### Sample Location & Description

Lat, Lon: 43.055662, -115.836994  
Metal Pipe w/ Tar like coating

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

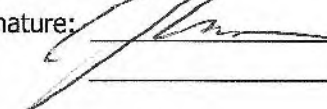
Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Meas

Inspector Signature: 





## Asbestos Bulk Sampling Data Sheet

### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-16-NE-1

### Sample Location & Description

Lat, Lon: 43.055566 055566, -115.836675  
Black Plastic

### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

### Condition

#### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Inspector Information

Inspector Name (Print): John Mear

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-17-NE-1

#### Sample Location & Description

Lat, Lon: 43.055683, -115.837487  
Painted Fiber board

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Meas

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-3-20  
Sample Number: LF043-B-18-NE-1

#### Sample Location & Description

Lat, Lon: 43.055994, -115.838177  
Foam w/ aluminum insulation

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: \_\_\_\_\_  
Sample Number: LF043-B-19-NE-1

#### Sample Location & Description

Lat, Lon: 43.05618, -115.838324  
Mastic on brick

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: 



## Asbestos Bulk Sampling Data Sheet

### General Information

Project: MHAFB  
Sampling Date: 6.3.20  
Sample Number: LF043-B-20-NE-1

### Sample Location & Description

Lat, Lon: 43.055489, -115.83766  
Ceramic Tile

### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

### Type of Damage

Deterioration: ✓  
Water: \_\_\_\_\_  
Physical: ✓

### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-21-NW-2

#### Sample Location & Description

Lat, Lon: 43.055427, -115.839019  
Plastic

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAEB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-22-NW-2

#### Sample Location & Description

Lat, Lon: 43.056074, -115.839066  
Rooting Shovel

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Meas

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6.4.20  
Sample Number: LF043-B-23-NW-2

#### Sample Location & Description

Lat. Lon: 43.05615, -115.839002  
Fibrous material w/ mastic

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-24-NW-2

#### Sample Location & Description

Lat, Lon: 43.057321, -115.838701  
Fibrous Plaster

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-11-20  
Sample Number: LF043-B-25-NW-2

#### Sample Location & Description

Lat, Lon: 43.05781, -115.839742  
Unknown material - file like

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Meas

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6.4.20  
Sample Number: LF043-B-26-NW-2

#### Sample Location & Description

Lat. Lon: 43.058362, -115.839824  
PVC Pipe

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6.4.20  
Sample Number: W LF043-B-27-NW-2

#### Sample Location & Description

Lat. Lon: 43.058534, -115.839696  
Roofing Shingle

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mear

Inspector Signature: [Signature]





## Asbestos Bulk Sampling Data Sheet

### General Information

Project: MHAFB  
Sampling Date: 6.4.20  
Sample Number: LF043-B-28-NW-2

### Sample Location & Description

Lat, Lon: 43.058534, -115.839696  
Transit pipe

### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

### Condition

#### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6.4.20  
Sample Number: LF043-B-29-NW-2

#### Sample Location & Description

Lat, Lon: 43.059209, -115.839923  
Transite pipe

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: ✓  
Significant Damage: \_\_\_\_\_

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mean

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-30-NW-2

#### Sample Location & Description

Lat, Lon: 43.059529, -115.839825  
Foam

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Mearns

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-31-NW-2

#### Sample Location & Description

Lat, Lon: 43.056333, -115.838685  
Unknown fibrous material

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-32-NW-2

#### Sample Location & Description

Lat. Lon: 43.058228, -115.838837  
Foam insulation w/ aluminum

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mear

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAEB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-33-NW-2

#### Sample Location & Description

Lat, Lon: 43.059454, -115.838217  
Plastic tubing

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mcars

Inspector Signature: [Signature]



## Asbestos Bulk Sampling Data Sheet

### General Information

Project: MHAFB  
Sampling Date: 6.4.20  
Sample Number: LF043-B-34-NW-2

### Sample Location & Description

Lat. Lon': 43.059832, -115.839667  
Plastic

### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

### Condition

#### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Inspector Information

Inspector Name (Print): John News

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-35-NW-2

#### Sample Location & Description

Lat, Lon: 43.059755, -115.839734  
Tile w / mastic

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-36-NW

#### Sample Location & Description

Lat, Lon: 43.059803, -115.839773  
Transit pipe

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mear

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6.4.20  
Sample Number: LF043-B-37-NW-2

#### Sample Location & Description

Lat. Lon: 43.059367, -115.840127  
Plastic Tubing Brown

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-38-NW-2

#### Sample Location & Description

Lat, Lon: 43.059328, -115.839973  
Transite

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

Duplicate

#### Inspector Information

Inspector Name (Print): John Mears  
Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6.4.20  
Sample Number: LF043-B-39-NW-2

#### Sample Location & Description

Lat, Lon: 43.059328, -115.839973  
Transite

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

Duplicate

#### Inspector Information

Inspector Name (Print): John Meares  
Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAEB  
Sampling Date: 6.4.20  
Sample Number: LF043-B-40-NW

#### Sample Location & Description

Lat, Lon: 43.059052, -115.840143  
Mesh Tape

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ☒

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ☒

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ☒

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ☒  
Water: ☒  
Physical: ☒

#### General Comments

#### Inspector Information

Inspector Name (Print): John Neas

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-41-BW SE-2

#### Sample Location & Description

Lat, Lon: 43.05512, -115.838542  
Blue tile

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-42-SE-2

#### Sample Location & Description

Lot, Lon: 43.055191, -115.838128  
Transite pipe

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LFD43-B-43-SE-2

#### Sample Location & Description

Lat, Lon: 43.0547, -115.837481  
Laminate

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John McLean

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-44-SE-2

#### Sample Location & Description

Lat, Lon: 43.054702, -115.8366  
Unknown pipe wrap

#### Type of Material

Surfacing:             
TSI: ✓  
Misc:           

#### Condition

Friability  
Friable: ✓  
Nonfriable:           

#### Overall Rating

Good:             
Damaged:             
Significant Damage: ✓

Percent Damage: NA %

Localized:             
Distributed:           

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical:           

#### General Comments

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6.4.20  
Sample Number: LF043-B-45-SE-2

#### Sample Location & Description

Lat, Lon: 43.05483, -115.836677  
Transite + brick

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): \_\_\_\_\_ Inspector Signature: \_\_\_\_\_





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6/4/20  
Sample Number: LF043-B-846-SW-2

#### Sample Location & Description

Lat, Lon: 43.054346, -115.839341  
Insulation w/ aluminum

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

Friability  
Friable: ✓  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]



## Asbestos Bulk Sampling Data Sheet

### General Information

Project: 8 MHA FB  
Sampling Date: 6.4.20  
Sample Number: LF043-B-47-SW-2

### Sample Location & Description

Lat, Lon: 43.053364, -115.839582  
Red brick like material

### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

### Condition

#### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: N/A %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

### General Comments

### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]



### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-48-SW-2

#### Sample Location & Description

Lat, Lon: 43.053295, -115.839863  
Cement like material

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Meas

Inspector Signature: [Signature]





### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MHAEB  
Sampling Date: 6-26-20  
Sample Number: LF043-B-49-SW-2

#### Sample Location & Description

Lat, Lon: 43.05321, -115.839598  
Blue tile

#### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

#### Condition

##### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

##### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

#### General Comments

#### Inspector Information

Inspector Name (Print): John Mears

Inspector Signature: [Signature]





## Asbestos Bulk Sampling Data Sheet

### General Information

Project: MHAFB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-50-SW

### Sample Location & Description

Lat, Lon: 43.05319, -115.839571  
Unknown ceramic like material

### Type of Material

Surfacing: \_\_\_\_\_  
TSI: \_\_\_\_\_  
Misc: ✓

### Condition

#### Friability

Friable: \_\_\_\_\_  
Nonfriable: ✓

#### Overall Rating

Good: \_\_\_\_\_  
Damaged: \_\_\_\_\_  
Significant Damage: ✓

Percent Damage: NA %

Localized: \_\_\_\_\_  
Distributed: \_\_\_\_\_

#### Type of Damage

Deterioration: ✓  
Water: ✓  
Physical: ✓

### General Comments

### Inspector Information

Inspector Name (Print): John McCar

Inspector Signature: [Signature]



**THE L&R GROUP**  
ENVIRONMENTAL + LABORATORIES

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208-813-6160  
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## Appendix B: Asbestos Bulk Sampling Data Sheets with Sample Photographs

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440 South Congress Avenue, Suite 24  
Miami, FL 33130  
305.441.5142  
www.thelr.com/labinfo.aspx

#### Asbestos Bulk Sampling Data Sheet

##### General Information

Project: MF05B

Sampling Date: 12-2-20

Sample Number: LF043-B-01-NE-1

##### Sample Location & Description

Location: 935 S.W. 15th St, Miami, FL 33130

Description: Tile

##### Type of Material

Surface: ☐

Fill: ☒

##### Condition

Fracture: ☐

Planar: ☐

Non-planar: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: N/A

Location: ☐

Disturbed: ☐

Type of Damage: ☒

Detachment: ☒

Water: ☒

Physical: ☒

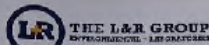
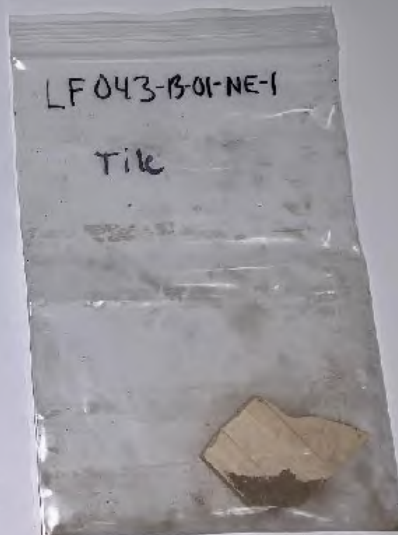
##### General Comments

##### Inspector Information

Inspector Name (Print): John Meyer

Inspector Signature: [Signature]

Page 1 of 1



440 South Congress Avenue, Suite 24  
Miami, FL 33130  
305.441.5142  
www.thelr.com/labinfo.aspx

#### Asbestos Bulk Sampling Data Sheet

##### General Information

Project: MF05B

Sampling Date: 12-2-20

Sample Number: LF043-B-02-NE-1

##### Sample Location & Description

Location: 935 S.W. 15th St, Miami, FL 33130

Description: Black Rubber-like material

##### Type of Material

Surface: ☐

Fill: ☒

##### Condition

Fracture: ☐

Planar: ☐

Non-planar: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: N/A

Location: ☐

Disturbed: ☐

Type of Damage: ☒

Detachment: ☒

Water: ☒

Physical: ☒

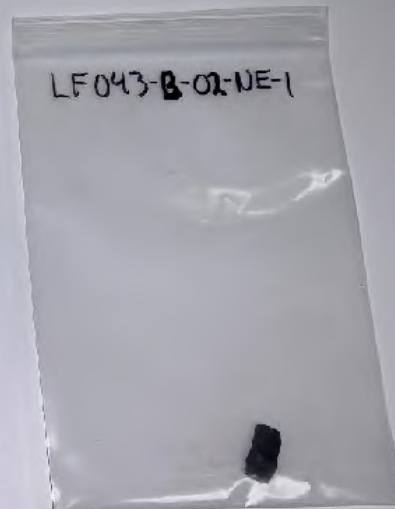
##### General Comments

##### Inspector Information

Inspector Name (Print): John Meyer

Inspector Signature: [Signature]

Page 1 of 1





Asbestos Bulk Sampling Data Sheet

General Information

Project: M44-71  
Sampling Date: 6-2-03  
Sample Number: LF043-B-03-NE-1

Sample Location & Description:  
Asst. L. L. L. 100 S. 024, 115, 132553  
Electrical

Type of Material

Substrate: ☐  
Tie: ☐  
Misc: ☒

Condition

Integrity: ☐  
Fragile: ☐  
Non-fragile: ☒

Overall Rating

Good: ☐  
Damaged: ☐  
Significant Damage: ☒

Percent Damage

100%

Localized: ☐  
Dispersed: ☐

Type of Damage

Detachment: ☒  
Weather: ☒  
Physical: ☒

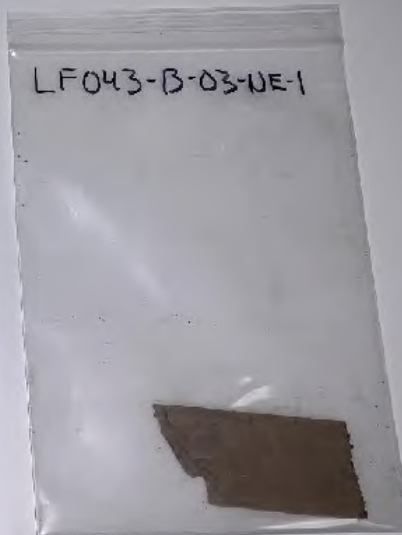
General Comments

Inspector Information

Inspector Name (Print): John Meier

Inspector Signature: [Signature]

Page 1 of 1



Asbestos Bulk Sampling Data Sheet

General Information

Project: M44-71  
Sampling Date: 6-2-03  
Sample Number: LF043-B-04-NE-1

Sample Location & Description:  
Asst. L. L. L. 100 S. 024, 115, 132553  
Electrical

Type of Material

Substrate: ☐  
Tie: ☐  
Misc: ☒

Condition

Integrity: ☐  
Fragile: ☐  
Non-fragile: ☒

Overall Rating

Good: ☐  
Damaged: ☐  
Significant Damage: ☒

Percent Damage

100%

Localized: ☐  
Dispersed: ☐

Type of Damage

Detachment: ☒  
Weather: ☒  
Physical: ☒

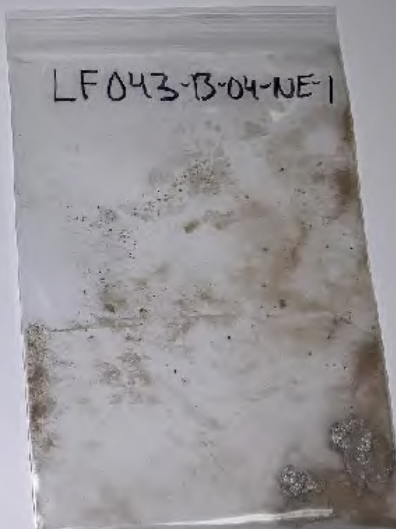
General Comments

Inspector Information

Inspector Name (Print): John Meier

Inspector Signature: [Signature]

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THE L&R GROUP  
ENVIRONMENTAL • LABORATORY

2000 W. Tropicana Avenue, Suite 204  
Las Vegas, NV 89119  
702-491-1743  
www.lrgroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: 13-APB

Sampling Date: 6-3-20

Sample Number: LF043-B-05-DE-1

Sample Location & Description

1st floor, 102-055923-2/3, 7/1/18

Electrical Panel / Plenum space

Type of Material

Surfacing: ☐

ISI: ☐

Misc: ☒

Condition

Integrity: ☐

Flaking: ☐

Normal: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: 100 %

Localized: ☐

Distributed: ☐

Type of Damage: ☐

Deterioration: ☒

Water: ☒

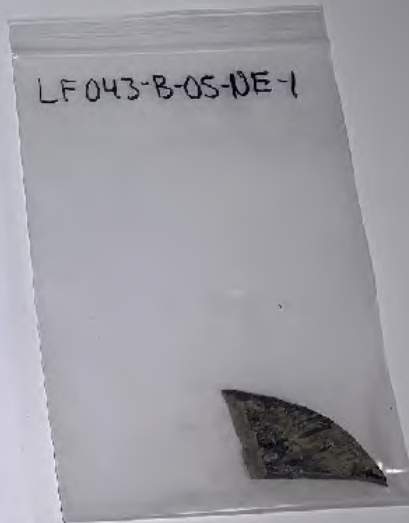
Physical: ☒

General Comments

Inspector Information  
Inspector Name (Print): John Means

Inspector Signature: [Signature]

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THE L&R GROUP  
ENVIRONMENTAL • LABORATORY

633 South Primm Avenue, Suite 204  
Las Vegas, NV 89119  
702-491-1743  
www.lrgroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: 13-APB

Sampling Date: 6-3-20

Sample Number: LF043-B-06-DE-1

Sample Location & Description

1st floor, 102-055923-2/3, 7/1/18

Plenum

Type of Material

Surfacing: ☐

ISI: ☐

Misc: ☒

Condition

Integrity: ☐

Flaking: ☐

Normal: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: 100 %

Localized: ☐

Distributed: ☐

Type of Damage: ☐

Deterioration: ☒

Water: ☒

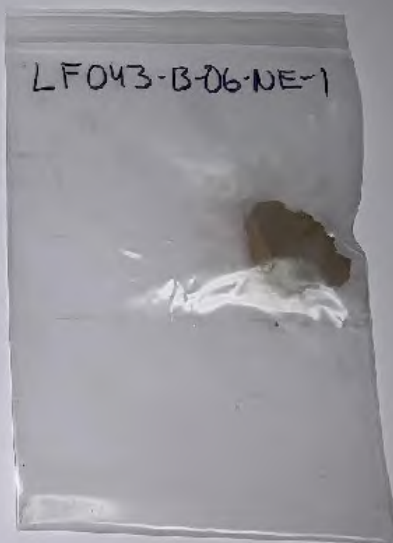
Physical: ☒

General Comments

Inspector Information  
Inspector Name (Print): John Means

Inspector Signature: [Signature]

Page 1 of 1





488 South Pompano Avenue, Suite 200  
Miramar, Florida 33185  
760.834.5100  
www.thelrgroup.com

#### Asbestos Bulk Sampling Data Sheet

##### General Information

Project: W1425  
Sampling Date: 6-27-20  
Sample Number: LF043-B-07-NE-1

##### Sample Location & Description

Lot 4, Box 1 152882 - 115-827141  
1.5m x 0.5m

##### Type of Material

Surface: ☐  
Fill: ☐  
Pipe: ☒

##### Condition

Integrity: ☐  
Friable: ☒  
Non-friable: ☒

##### Overall Rating

Good: ☐  
Damaged: ☐  
Significant Damage: ☒

Percent Damage: N/A %  
Location: ☐  
Disturbed: ☐

##### Type of Damage

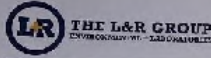
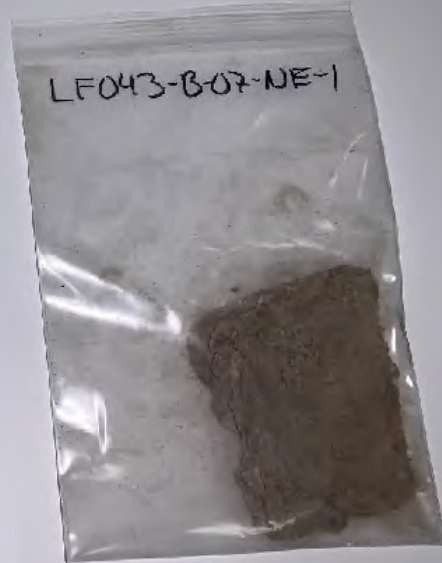
Detachment: ☒  
Water: ☒  
Physical: ☒

##### General Comments

##### Inspector Information

Inspector Name (Print): John Means Inspector Signature: [Signature]

Page 1 of 1



488 South Pompano Avenue, Suite 200  
Miramar, Florida 33185  
760.834.5100  
www.thelrgroup.com

#### Asbestos Bulk Sampling Data Sheet

##### General Information

Project: W1425  
Sampling Date: 6-27-20  
Sample Number: LF043-B-08-NE-1

##### Sample Location & Description

Lot 4, Box 1 152882 - 115-827141  
1.5m x 0.5m

##### Type of Material

Surface: ☐  
Fill: ☐  
Pipe: ☒

##### Condition

Integrity: ☐  
Friable: ☒  
Non-friable: ☒

##### Overall Rating

Good: ☐  
Damaged: ☐  
Significant Damage: ☒

Percent Damage: N/A %  
Location: ☐  
Disturbed: ☐

##### Type of Damage

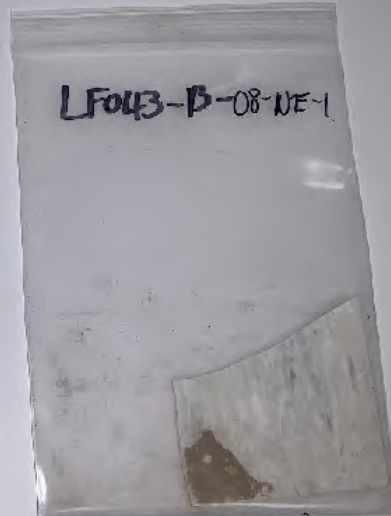
Detachment: ☒  
Water: ☒  
Physical: ☒

##### General Comments

##### Inspector Information

Inspector Name (Print): John Means Inspector Signature: [Signature]

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THE L&R GROUP  
ENVIRONMENTAL LABORATORIES

180 South Congress Avenue, Suite 28  
Meridian, Idaho 83402  
208.423.4542  
www.TheL&RGroup.com

Ashmetos Bulk Sampling Data Sheet

General Information

Project: Millican

Sampling Date: 6-13-20

Sample Number: LF043-B-09-NE-1

Sample Location & Description

Location: LF043-B-09-NE-1

Description: Asbestos

Type of Material

Asbestos: ☐

Soil: ☐

Misc: ☒

Condition

Integrity: ☐

Fractured: ☒

Removable: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: 100 %

Localized: ☐

Distributed: ☐

Type of Damage

Deterioration: ☒

Water: ☒

Physical: ☒

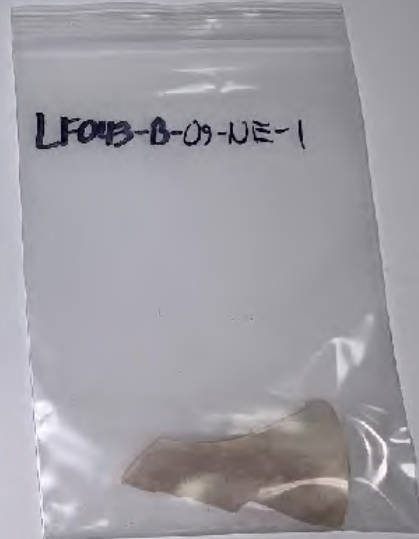
General Comments

Inspector Information

Inspector Name (Print): John Allen

Inspector Signature: [Signature]

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180 South Congress Avenue, Suite 28  
Meridian, Idaho 83402  
208.423.4542  
www.TheL&RGroup.com

Ashmetos Bulk Sampling Data Sheet

General Information

Project: Millican

Sampling Date: 6-13-20

Sample Number: LF043-B-10-NE-1

Sample Location & Description

Location: LF043-B-10-NE-1

Description: Asbestos

Type of Material

Asbestos: ☐

Soil: ☐

Misc: ☒

Condition

Integrity: ☐

Fractured: ☒

Removable: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: 100 %

Localized: ☐

Distributed: ☐

Type of Damage

Deterioration: ☒

Water: ☒

Physical: ☒

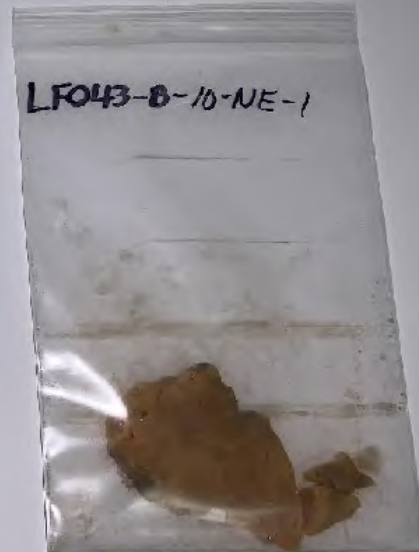
General Comments

Inspector Information

Inspector Name (Print): John Allen

Inspector Signature: [Signature]

Page 1 of 1







THE L&R GROUP  
ENVIRONMENTAL & LABORATORY

221 South Progress Avenue, Suite 2A  
Beverly Hills, CA 91607  
310-415-1100  
www.LandLGroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: M. 4412  
Sampling Date: 6/23/20  
Sample Number: LF043-B-11-NE-1

Sample Location & Identification

Location: 478.06 G73 - HS, 821-63  
Product: pipe

Type of Material

Surfacing: ☐  
TSC: ☐  
Misc: ☒

Condition

Integrity: ☐  
Fragile: ☐  
Intact: ☒

Overall Rating

Good: ☐  
Damaged: ☒  
Significant Damage: ☒

Percent Damaged: NA %  
Localized: ☐  
Dispersed: ☐

Type of Damage

Deterioration: ☒  
Weather: ☒  
Physical: ☒

General Comments

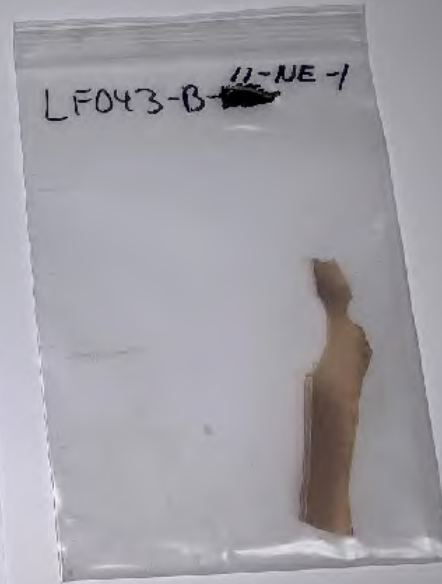
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\_\_\_\_\_  
\_\_\_\_\_

Inspector Information

Inspector Name (Print): John Meier

Inspector Signature: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_



THE L&R GROUP  
ENVIRONMENTAL & LABORATORY

221 South Progress Avenue, Suite 2A  
Beverly Hills, CA 91607  
310-415-1100  
www.LandLGroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: M. 4412  
Sampling Date: 6/23/20  
Sample Number: LF043-B-12-NE-1

Sample Location & Identification

Location: 478.06 G73 - HS, 821-63  
Material: Thermal pipe

Type of Material

Surfacing: ☐  
TSC: ☐  
Misc: ☒

Condition

Integrity: ☐  
Fragile: ☐  
Intact: ☒

Overall Rating

Good: ☐  
Damaged: ☒  
Significant Damage: ☒

Percent Damaged: NA %  
Localized: ☐  
Dispersed: ☐

Type of Damage

Deterioration: ☒  
Weather: ☒  
Physical: ☒

General Comments

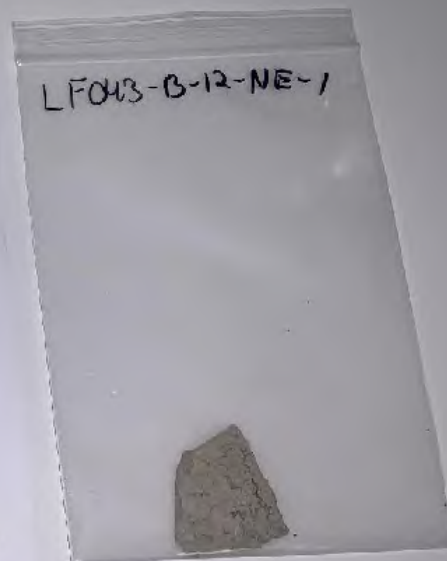
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Inspector Information

Inspector Name (Print): John Meier

Inspector Signature: \_\_\_\_\_

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Asbestos Bulk Sampling Data Sheet

General Information

Project: LAHACB  
Sampling Date: 6-2-20  
Sample Number: LF043-B-13-NE-1

Sample Location & Description:  
Lab. Cont. 43.055m<sup>2</sup> / 45.87m<sup>2</sup> / 22  
Unknown / 12.2

Type of Material

Asbestos: ☐  
TSC: ☐  
Misc: ☒

Condition

Fracture: ☐  
Non-Fracture: ☒

Overall Rating

Good: ☐  
Damaged: ☐  
Significant Damage: ☒

Percent Damage:

100 %  
Localized: ☐  
Distributed: ☐

Type of Damage

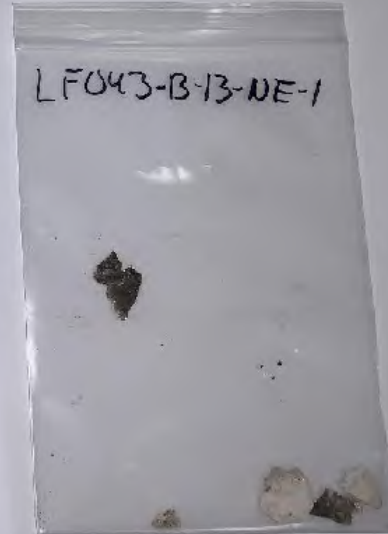
Deterioration: ☒  
Weather: ☒  
Physical: ☒

General Comments

Inspector Information

Inspector Name (Print): John Hester Inspector Signature: [Signature]

Page 1 of 1



Asbestos Bulk Sampling Data Sheet

General Information

Project: LAHACB  
Sampling Date: 6-2-20  
Sample Number: LF043-B-14-NE-1

Sample Location & Description:  
Lab. Cont. 43.055m<sup>2</sup> / 45.87m<sup>2</sup> / 22  
Asbestos

Type of Material

Asbestos: ☐  
TSC: ☐  
Misc: ☒

Condition

Fracture: ☐  
Non-Fracture: ☒

Overall Rating

Good: ☐  
Damaged: ☐  
Significant Damage: ☒

Percent Damage:

100 %  
Localized: ☐  
Distributed: ☐

Type of Damage

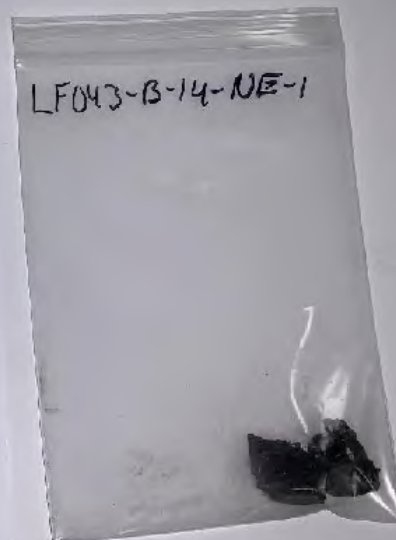
Deterioration: ☒  
Weather: ☒  
Physical: ☒

General Comments

Inspector Information

Inspector Name (Print): John Hester Inspector Signature: [Signature]

Page 1 of 1





THE L&R GROUP  
ENVIRONMENTAL LABORATORIES

480 South Progress Avenue, Suite 28  
Westfield, MA 01085  
Tel: 413-253-1100  
Fax: 413-253-1101  
www.TheL&RGroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: MUSKOGEE  
Sampling Date: 6-3-20  
Sample Number: LF043-B-15-NE-1

Sample Location & Description

Lot # 2, LF 3055662, 115 EA 294  
Black Pipe w/ loose like material

Type of Material

Surfacing: ☐  
TSL: ☐  
Misc: ☒

Condition

Integrity: ☐  
Friable: ☐  
Nonfriable: ☒

Overall Rating

Good: ☐  
Damaged: ☒  
Significant Damage: ☒

Percent Damaged: NA %

Localized: ☐  
Dispersed: ☐

Type of Damage

Deterioration: ☒  
Water: ☒  
Physical: ☒

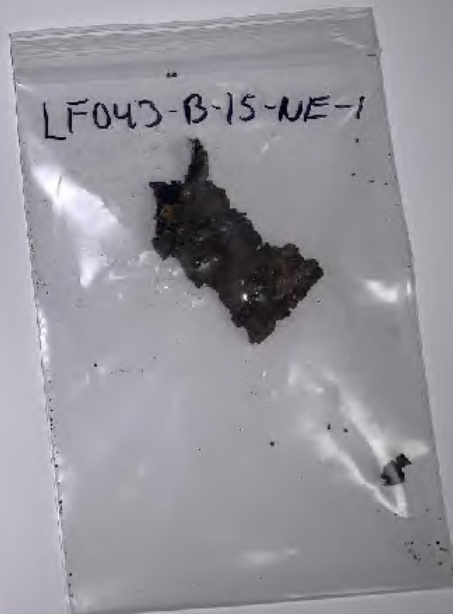
General Comments

Inspector Information

Inspector Name (Print): John Meas

Inspector Signature: [Signature]

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THE L&R GROUP  
ENVIRONMENTAL LABORATORIES

480 South Progress Avenue, Suite 28  
Westfield, MA 01085  
Tel: 413-253-1100  
Fax: 413-253-1101  
www.TheL&RGroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: MUSKOGEE  
Sampling Date: 6-3-20  
Sample Number: LF043-B-16-NE-1

Sample Location & Description

Lot # 2, LF 3055662, 115 EA 295  
Black Pipe

Type of Material

Surfacing: ☐  
TSL: ☐  
Misc: ☒

Condition

Integrity: ☐  
Friable: ☐  
Nonfriable: ☒

Overall Rating

Good: ☐  
Damaged: ☒  
Significant Damage: ☒

Percent Damaged: NA %

Localized: ☐  
Dispersed: ☐

Type of Damage

Deterioration: ☒  
Water: ☒  
Physical: ☒

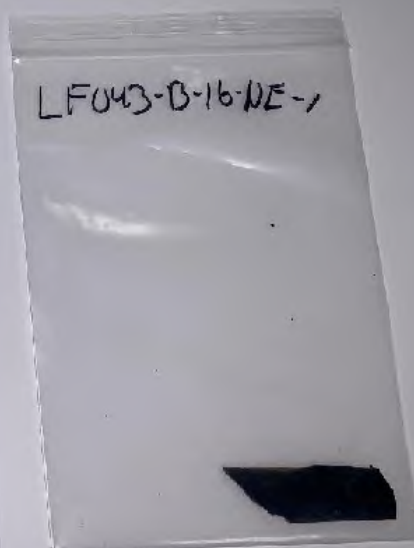
General Comments

Inspector Information

Inspector Name (Print): John Meas

Inspector Signature: [Signature]

Page 1 of 1







THE L&R GROUP  
ENVIRONMENTAL LABORATORIES

680 South Progress Avenue, Suite 22  
Middletown, Rhode Island 02842  
(401) 941-1100  
www.TheL&RGroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: M11463  
Sampling Date: 6-13-20  
Sample Number: LF043-B-17-NE-1

Sample Location & Description

Location: 45-0556X3-115-X3-1/87  
Material: Fibrous material

Type of Material

Surface: ☐

Fill: ☐

Misc: ☒

Condition

Integrity: ☐

Fracture: ☐

Nonfriable: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damage: 100%

Localized: ☐

Disrupted: ☐

Type of Damage: ☒

Deterioration: ☒

Water: ☒

Physical: ☒

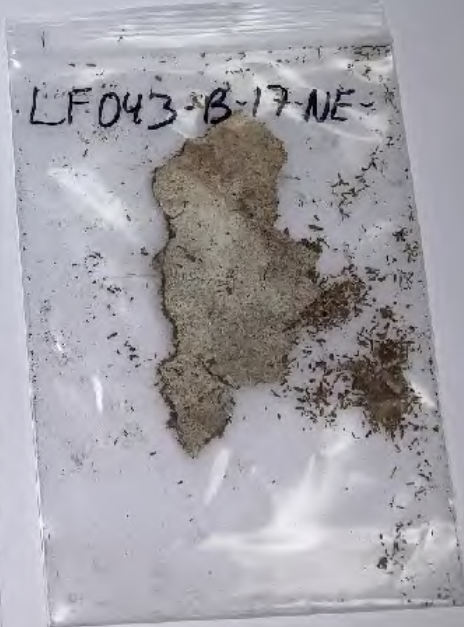
General Comments

Inspector Information

Inspector Name (Print): John Meas

Inspector Signature: [Signature]

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THE L&R GROUP  
ENVIRONMENTAL LABORATORIES

680 South Progress Avenue, Suite 22  
Middletown, Rhode Island 02842  
(401) 941-1100  
www.TheL&RGroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: M11463  
Sampling Date: 6-13-20  
Sample Number: LF043-B-18-NE-1

Sample Location & Description

Location: 45-0556X4-115-X3-1/87  
Material: 1 Green, 1 Yellow, 1 Brown, 1 Black, 1 White

Type of Material

Surface: ☐

Fill: ☐

Misc: ☒

Condition

Integrity: ☐

Fracture: ☐

Nonfriable: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damage: 100%

Localized: ☐

Disrupted: ☐

Type of Damage: ☒

Deterioration: ☒

Water: ☒

Physical: ☒

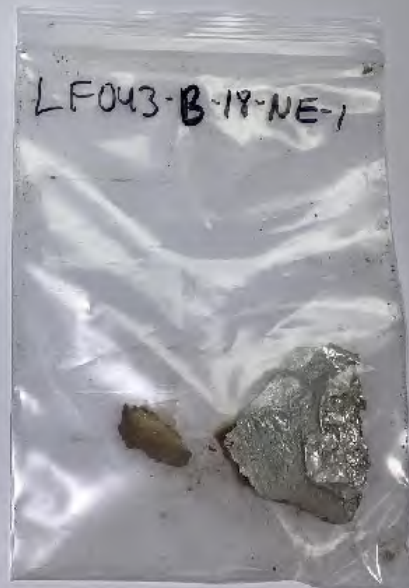
General Comments

Inspector Information

Inspector Name (Print): John Meas

Inspector Signature: [Signature]

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THE L&R GROUP  
ENVIRONMENTAL LABORATORIES

666 South Progress Avenue, Suite 22  
Midvale, Utah 84042  
801-413-4199  
www.TheL&RGroup.com

#### Asbestos Bulk Sampling Data Sheet

##### General Information

Project: MAHES  
Sampling Date: \_\_\_\_\_  
Sample Number: LF043-B-19-NE-1

##### Sample Location & Description

Latitude: 43.0548, -115.838224  
Address: Brick

##### Type of Material

Surface: \_\_\_\_\_  
TSO: \_\_\_\_\_  
Misc: ☒

##### Condition

Fracture: \_\_\_\_\_  
Non-fracture: ☒

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: ☒

Significant Damage: ☒

Percent Damage: 100 %

Localized: \_\_\_\_\_

Distributed: \_\_\_\_\_

##### Type of Damage

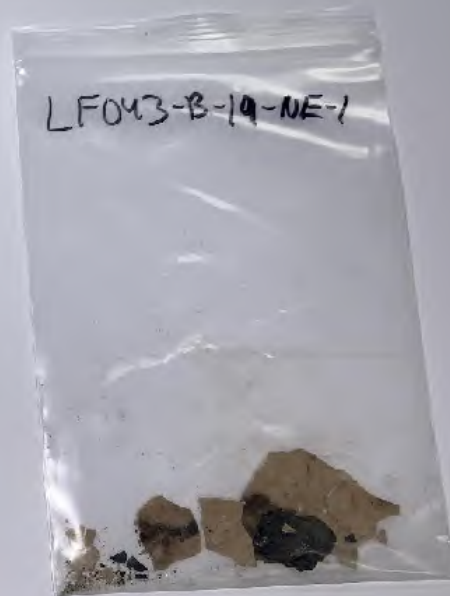
Detachment: ☒  
Wedge: ☒  
Physical: ☒

##### General Comments

##### Inspector Information

Inspector Name (Print): John Allan Inspector Signature: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_



THE L&R GROUP  
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666 South Progress Avenue, Suite 22  
Midvale, Utah 84042  
801-413-4199  
www.TheL&RGroup.com

#### Asbestos Bulk Sampling Data Sheet

##### General Information

Project: MAHES  
Sampling Date: 6-3-20  
Sample Number: LF043-B-20-NE-1

##### Sample Location & Description

Latitude: 43.0548, -115.838224  
Address: Brick

##### Type of Material

Surface: \_\_\_\_\_  
TSO: \_\_\_\_\_  
Misc: ☒

##### Condition

Fracture: \_\_\_\_\_  
Non-fracture: ☒

##### Overall Rating

Good: \_\_\_\_\_  
Damaged: ☒

Significant Damage: ☒

Percent Damage: 100 %

Localized: \_\_\_\_\_

Distributed: \_\_\_\_\_

##### Type of Damage

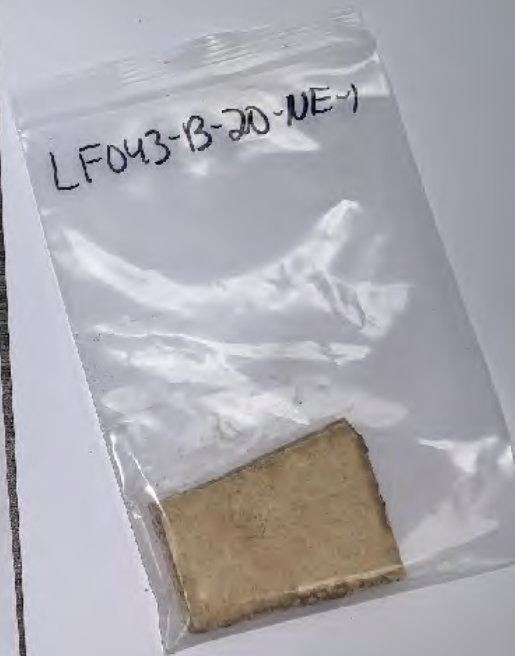
Detachment: ☒  
Wedge: ☒  
Physical: ☒

##### General Comments

##### Inspector Information

Inspector Name (Print): John Allan Inspector Signature: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_





**THE L&R GROUP**  
ENVIRONMENTAL & LAB SERVICES

180 South Progress Avenue, Suite 23  
Storidian, MA 01904  
781-815-8100  
www.TheL&RGroup.com

**Asbestos Bulk Sampling Data Sheet**

**General Information**

Project: MUAPS  
Sampling Date: 6-4-20  
Sample Number: LF045-B-21-NW-2

**Sample Location & Description**

Lat/Long: 41° 05' 05.5424, -71° 5' 30.614  
Plastic

**Type of Material**

Surfing: ☐  
TSC: ☐  
Misc: ☒

**Condition**

Availability: ☐  
Probable: ☐  
Nonfriable: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☐

Significant Damage: ☒

Percent Damaged: NA %

Localized: ☐

Distributed: ☐

Type of Damage: ☐

Deterioration: ☒

Water: ☒

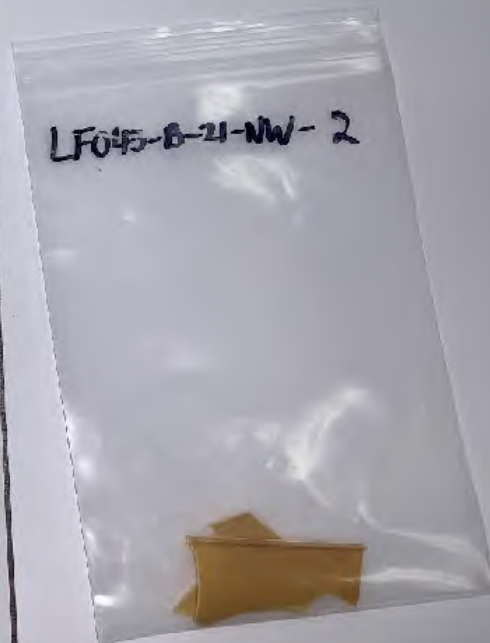
Physical: ☒

**General Comments**

**Inspector Information**

Inspector Name (Print): John Mean Inspector Signature: [Signature]

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**THE L&R GROUP**  
ENVIRONMENTAL & LAB SERVICES

180 South Progress Avenue, Suite 23  
Storidian, MA 01904  
781-815-8100  
www.TheL&RGroup.com

**Asbestos Bulk Sampling Data Sheet**

**General Information**

Project: MUAPS  
Sampling Date: 6-4-20  
Sample Number: LF043-B-22-NW-2

**Sample Location & Description**

Lat/Long: 41° 05' 05.5424, -71° 5' 30.614  
Plastic Sample

**Type of Material**

Surfing: ☐  
TSC: ☐  
Misc: ☒

**Condition**

Availability: ☐  
Probable: ☐  
Nonfriable: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☐

Significant Damage: ☒

Percent Damaged: NA %

Localized: ☐

Distributed: ☐

Type of Damage: ☐

Deterioration: ☒

Water: ☒

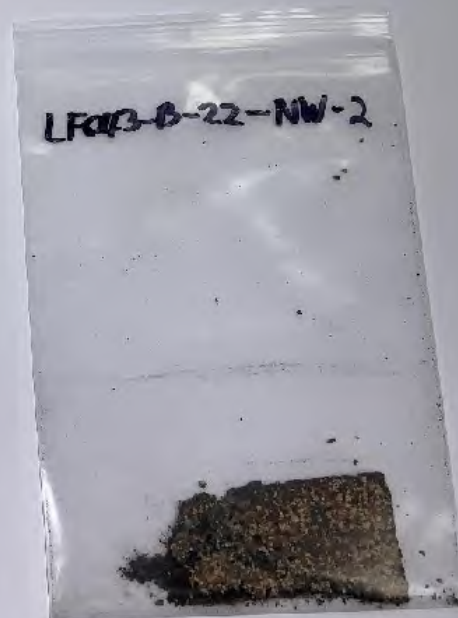
Physical: ☒

**General Comments**

**Inspector Information**

Inspector Name (Print): John Mean Inspector Signature: [Signature]

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THE L&R GROUP  
ENVIRONMENTAL LABORATORIES

283 South Douglas Street, Suite 205  
Portland, Maine 04102  
Tel: 207-633-1100  
www.TheL&RGroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: 15-000  
Sampling Date: 6/17/10  
Sample Number: LF04B-B-23-NV-2

Sample Location & Description

Lot: Lot 1, 430 Adams St, Portland, ME  
Location: Basement

Type of Material

Surfing: ☐  
Till: ☐  
Mud: ☒

Condition

Integrity: ☐  
Friable: ☒  
Nonfriable: ☐

Overall Rating

Good: ☐  
Fair: ☐  
Poor: ☒

Significant Damage

Yes: ☒  
No: ☐

Percent Damage

Localized: ☒  
Distributed: ☐

Type of Damage

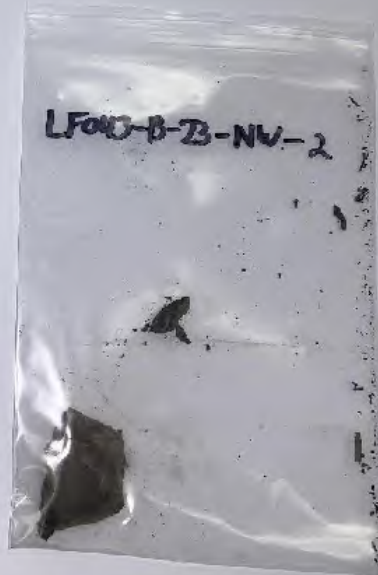
Deterioration: ☒  
Water: ☒  
Physical: ☒

General Comments

Inspector Information

Inspector Name (Print): John Allen Inspector Signature: [Signature]

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THE L&R GROUP  
ENVIRONMENTAL LABORATORIES

210 Fox & Phipps Avenue, Suite 205  
Portland, Maine 04102  
Tel: 207-633-1100  
www.TheL&RGroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: 15-000  
Sampling Date: 6/17/10  
Sample Number: LF04B-B-24-NV-2

Sample Location & Description

Lot: Lot 1, 430 Adams St, Portland, ME  
Location: Basement

Type of Material

Surfing: ☐  
Till: ☐  
Mud: ☒

Condition

Integrity: ☐  
Friable: ☒  
Nonfriable: ☐

Overall Rating

Good: ☐  
Fair: ☐  
Poor: ☒

Significant Damage

Yes: ☒  
No: ☐

Percent Damage

Localized: ☒  
Distributed: ☐

Type of Damage

Deterioration: ☒  
Water: ☒  
Physical: ☒

General Comments

Inspector Information

Inspector Name (Print): John Allen Inspector Signature: [Signature]

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Asbestos Bulk Sampling Data Sheet

General Information

Project: MIAAFS  
Sampling Date: 6/18/24  
Sample Number: LF043-B-25-NW-2

Sample Location & Description

Location: 43-058-22-115-73924  
Description: interior - 73924

Type of Material

Surface: ☐  
TSP: ☐  
Mat: ☒

Condition

Integrity: ☐  
Pebbles: ☐  
Nonfriable: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: 100%

Localized: ☒

Distributed: ☐

Type of Damage

Deterioration: ☒

Water: ☒

Physical: ☒

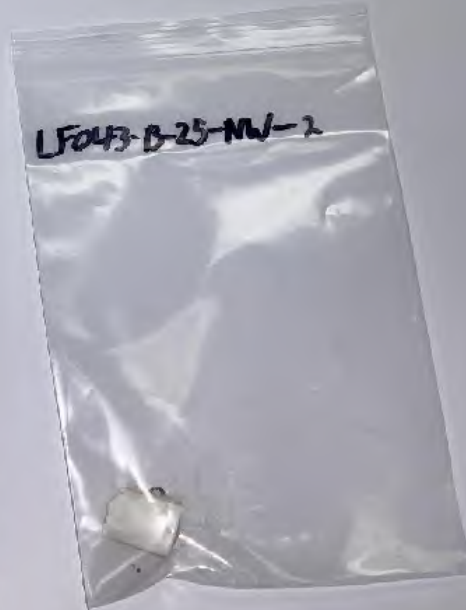
General Comments

Inspector Information

Inspector Name (Print): John Moran

Inspector Signature: [Signature]

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Asbestos Bulk Sampling Data Sheet

General Information

Project: MIAAFS  
Sampling Date: 6/18/24  
Sample Number: LF043-B-26-NW-2

Sample Location & Description

Location: 43-058-22-115-73924  
Description: interior - 73924

Type of Material

Surface: ☐  
TSP: ☐  
Mat: ☒

Condition

Integrity: ☐  
Pebbles: ☐  
Nonfriable: ☒

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: 100%

Localized: ☒

Distributed: ☐

Type of Damage

Deterioration: ☒

Water: ☒

Physical: ☒

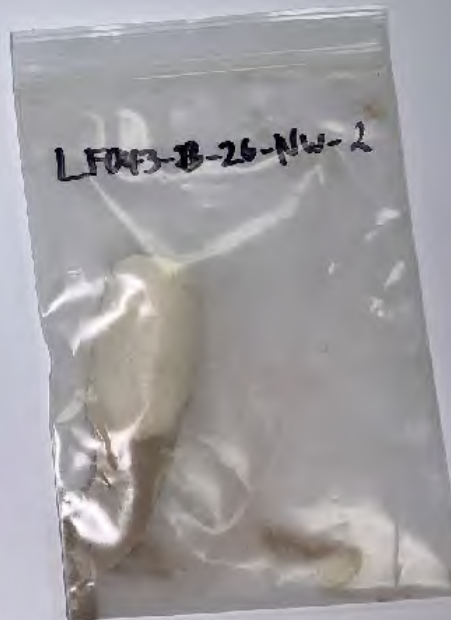
General Comments

Inspector Information

Inspector Name (Print): John Moran

Inspector Signature: [Signature]

Page 1 of 1







688 South Progress Avenue, Suite 100  
Hawthorne, Idaho 83402  
800-833-6117  
www.thelr.com

### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MUSEUM  
Sampling Date: 6-27-20  
Sample Number: LF04B-B-27-NW-2

Sample Location & Description:  
Cont. Room: 13058888, -115 850888  
Residing Sample

#### Type of Material

Surfacing: ☐  
TSI: ☐  
Misc: ☒

#### Condition

Fracture: ☐  
Nonfracture: ☒

#### Overall Rating

Good: ☐  
Damaged: ☒

#### Significant Damage

Percent Damaged: 100%

Localized: ☐  
Distributed: ☐

#### Type of Damage

Deterioration: ☒  
Water: ☒  
Physical: ☒

#### General Comments

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]

Page 1 of 1



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Hawthorne, Idaho 83402  
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www.thelr.com

### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MUSEUM  
Sampling Date: 6-27-20  
Sample Number: LF04B-B-23-NW-2

Sample Location & Description:  
Cont. Room: 13058888, -115 850888  
Residing Sample

#### Type of Material

Surfacing: ☐  
TSI: ☐  
Misc: ☒

#### Condition

Fracture: ☐  
Nonfracture: ☒

#### Overall Rating

Good: ☐  
Damaged: ☒

#### Significant Damage

Percent Damaged: 100%

Localized: ☐  
Distributed: ☐

#### Type of Damage

Deterioration: ☒  
Water: ☒  
Physical: ☒

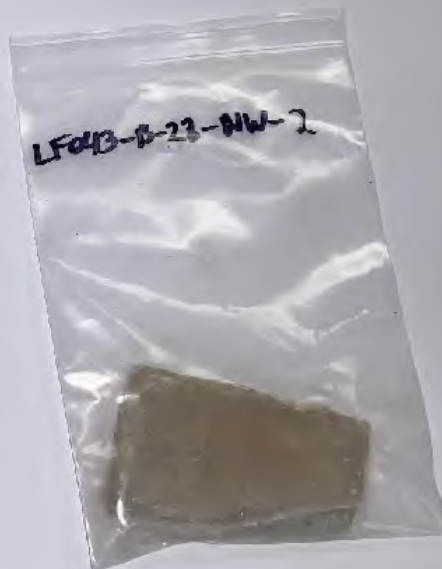
#### General Comments

#### Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]

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Beverly Hills, MA 02464  
617-413-4100  
www.thelargroup.com

Asbestos Bulk Sampling Data Sheet

General Information

Project: WHA-2  
Sampling Date: 6/14/20  
Sample Number: LEAD-B-29-NW-2

Sample Location & Description

Location: 43-059202-115-Y39923  
Description: floor

Type of Material

Surfacing: ☐  
TST: ☐  
Misc: ☒

Condition

Probability:  
Fibrous: ☒  
Nonfibrous: ☐

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: NA %

Localized: ☐

Distributed: ☐

Type of Damage:

Deterioration: ☒

Water: ☒

Physical: ☒

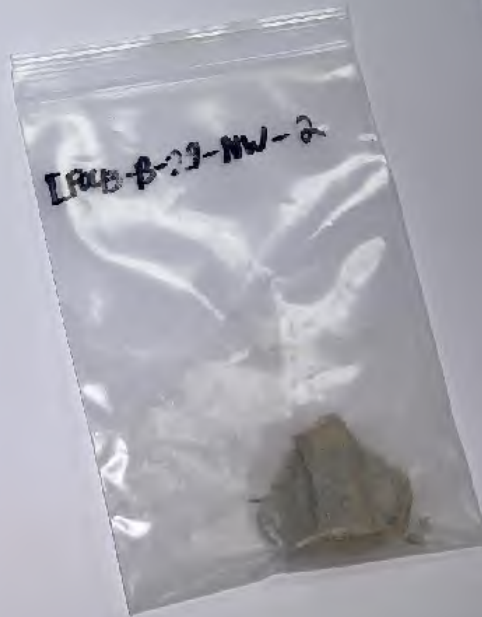
General Comments

Inspector Information

Inspector Name (Print): John Mean

Inspector Signature: [Signature]

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Asbestos Bulk Sampling Data Sheet

General Information

Project: WHA-2  
Sampling Date: 6/14/20  
Sample Number: LEAD-B-30-NW-2

Sample Location & Description

Location: 43-059202-115-Y39923  
Description: Floor

Type of Material

Surfacing: ☐  
TST: ☐  
Misc: ☒

Condition

Probability:  
Fibrous: ☒  
Nonfibrous: ☐

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: NA %

Localized: ☐

Distributed: ☐

Type of Damage:

Deterioration: ☒

Water: ☒

Physical: ☒

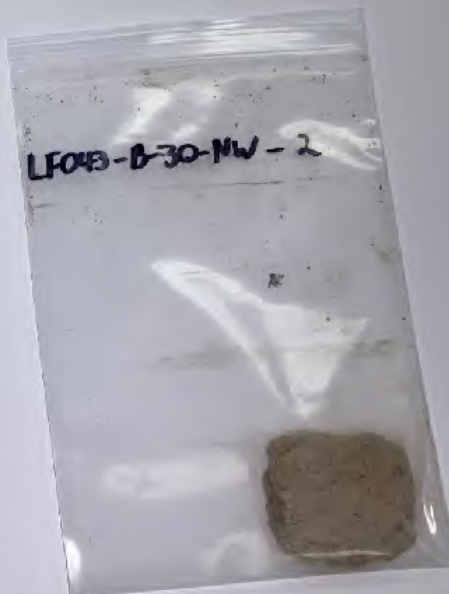
General Comments

Inspector Information

Inspector Name (Print): John Mean

Inspector Signature: [Signature]

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200-613-6100  
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#### Asbestos Bulk Sampling Data Sheet

##### General Information

Project: MMAFB  
Sampling Date: 6-4-20  
Sample Number: LF013-B-21-NW-2

##### Sample Location & Description

Lat. Lon.: 43.054333, -115.738675  
Unknown Fibers material

##### Type of Material

Surfacing: ☐  
TST: ☒  
Misc: ☒

##### Condition

Integrity: ☐  
Friable: ☒  
Nonfriable: ☐

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: NA %

Localized: ☐

Distributed: ☐

Type of Damage: ☒

Deterioration: ☒

Water: ☒

Physical: ☒

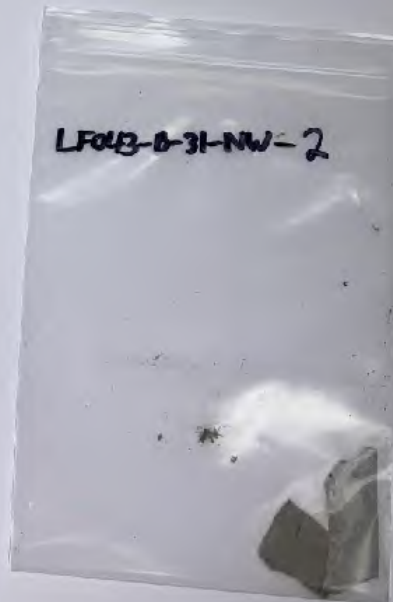
##### General Comments

##### Inspector Information

Inspector Name (Print): John Means Inspector Signature: [Signature]

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LF013-B-21-NW-2



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#### Asbestos Bulk Sampling Data Sheet

##### General Information

Project: MMAFB  
Sampling Date: 6-4-20  
Sample Number: LF013-B-32-NW-2

##### Sample Location & Description

Lat. Lon.: 43.059224, -115.738675  
Fibers insulation and aluminum

##### Type of Material

Surfacing: ☐  
TST: ☒  
Misc: ☒

##### Condition

Integrity: ☐  
Friable: ☒  
Nonfriable: ☐

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damaged: NA %

Localized: ☐

Distributed: ☐

Type of Damage: ☒

Deterioration: ☒

Water: ☒

Physical: ☒

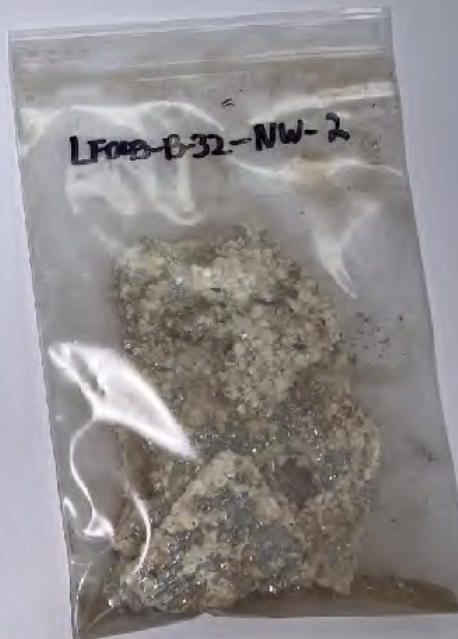
##### General Comments

##### Inspector Information

Inspector Name (Print): John Means Inspector Signature: [Signature]

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LF013-B-32-NW-2





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### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MACE  
Sampling Date: 6-14-20  
Sample Number: LF043-B-33-NW-2

#### Sample Location & Description

Lat, Lon: 43.059434, -115.838217  
Plastic tubing

#### Type of Material

Surfacing: ☐  
TSI: ☐  
Misc: ☒

#### Condition

Friability  
Friable: ☐  
Nonfriable: ☒

#### Overall Rating

Good: ☐  
Damaged: ☒  
Significant Damage: ☐

Percent Damaged: NA %  
Localized: ☐  
Distributed: ☐

#### Type of Damage

Deterioration: ☒  
Water: ☒  
Physical: ☐

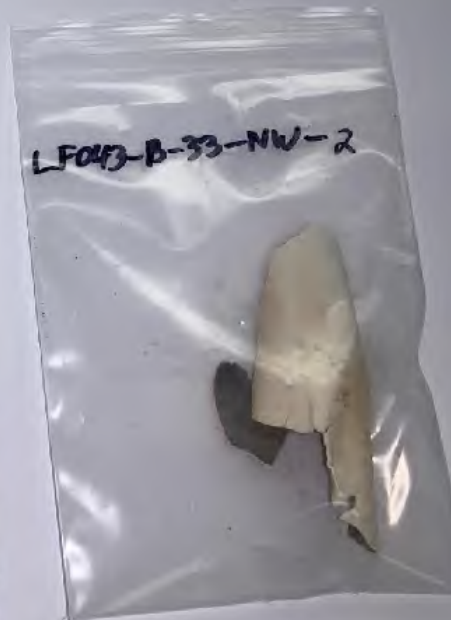
#### General Comments

#### Inspector Information

Inspector Name (Print): John McEers

Inspector Signature: [Signature]

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### Asbestos Bulk Sampling Data Sheet

#### General Information

Project: MACE  
Sampling Date: 6-14-20  
Sample Number: LF043-B-34-NW-2

#### Sample Location & Description

Lat, Lon: 43.059432, -115.83867  
Plastic

#### Type of Material

Surfacing: ☐  
TSI: ☐  
Misc: ☒

#### Condition

Friability  
Friable: ☐  
Nonfriable: ☒

#### Overall Rating

Good: ☐  
Damaged: ☒  
Significant Damage: ☐

Percent Damaged: NA %  
Localized: ☐  
Distributed: ☐

#### Type of Damage

Deterioration: ☒  
Water: ☒  
Physical: ☐

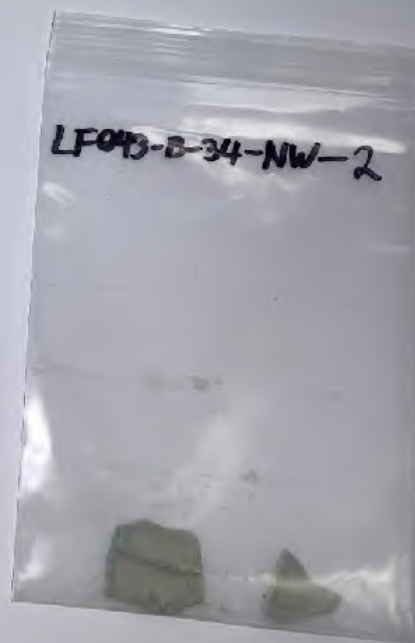
#### General Comments

#### Inspector Information

Inspector Name (Print): John McEers

Inspector Signature: [Signature]

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**Asbestos Bulk Sampling Data Sheet**

**General Information**

Project: MHACB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-35-NW-2

**Sample Location & Description**

Lat/Lon: 43.059755, -116.832724  
Title: ice machine

**Type of Material**

Surfacing: ☐  
TSI: ☐  
Misc: ☒

**Condition**

Friability: ☐  
Fragile: ☒  
Nonfriable: ☐

**Overall Rating**

Good: ☐  
Damaged: ☒  
Significant Damage: ☒

Percent Damage: 100 %  
Localized: ☐  
Disrupted: ☐

**Type of Damage**

Deterioration: ☒  
Water: ☒  
Physical: ☒

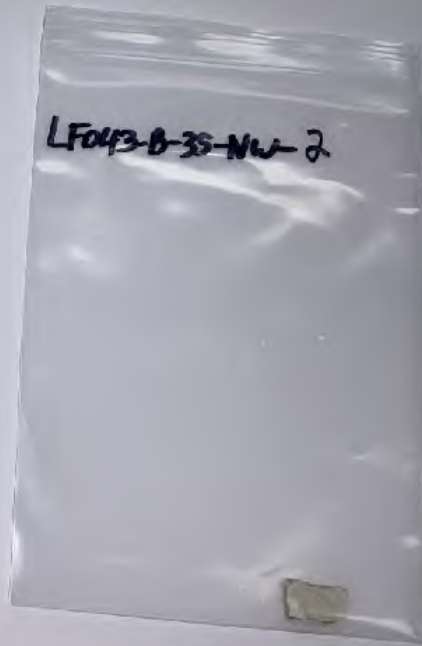
**General Comments**

**Inspector Information**

Inspector Name (Print): John Meers

Inspector Signature: [Signature]

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**Asbestos Bulk Sampling Data Sheet**

**General Information**

Project: MHACB  
Sampling Date: 6-4-20  
Sample Number: LF043-B-36-NW-2

**Sample Location & Description**

Lat/Lon: 43.059803, -116.839223  
Title: transit pipe

**Type of Material**

Surfacing: ☐  
TSI: ☐  
Misc: ☒

**Condition**

Friability: ☐  
Fragile: ☒  
Nonfriable: ☐

**Overall Rating**

Good: ☐  
Damaged: ☒  
Significant Damage: ☒

Percent Damage: 100 %  
Localized: ☐  
Disrupted: ☐

**Type of Damage**

Deterioration: ☒  
Water: ☒  
Physical: ☒

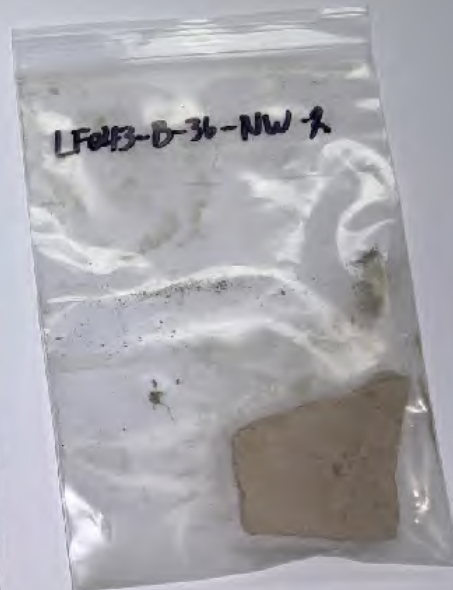
**General Comments**

**Inspector Information**

Inspector Name (Print): John Meers

Inspector Signature: [Signature]

Page 1 of 1





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Asbestos Bulk Sampling Data Sheet

General Information

Project: MHAFF  
Sampling Date: 6-4-20  
Sample Number: LF043-B-37-NW-2

Sample Location & Description

Lat. Lon.: 43.059328, -115.846123  
Trangis, Idaho

Type of Material

Surfacing: ☐  
TSE: ☐  
Misc: ☒

Condition

Fracture: ☐  
Fragile: ☒  
Nonfriable: ☒

Overall Rating

Good: ☐  
Damaged: ☒  
Significant Damage: ☒

Percent Damage: 100 %

Localized: ☐  
Distributed: ☐

Type of Damage: ☒  
Deterioration: ☒  
Water: ☒  
Physical: ☒

General Comments

Inspector Information  
Inspector Name (Print): John Mears

Inspector Signature: [Signature]

Page 1 of 1

LF043-B-37-NW-2



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Asbestos Bulk Sampling Data Sheet

General Information

Project: MHAFF  
Sampling Date: 6-4-20  
Sample Number: LF043-B-38-NW-2

Sample Location & Description

Lat. Lon.: 43.059328, -115.838873  
Trangis, Idaho

Type of Material

Surfacing: ☐  
TSE: ☐  
Misc: ☒

Condition

Fracture: ☐  
Fragile: ☒  
Nonfriable: ☒

Overall Rating

Good: ☐  
Damaged: ☒  
Significant Damage: ☒

Percent Damage: 100 %

Localized: ☐  
Distributed: ☐

Type of Damage: ☒  
Deterioration: ☒  
Water: ☒  
Physical: ☒

General Comments

Asbestos

Inspector Information  
Inspector Name (Print): John Mears

Inspector Signature: [Signature]

Page 1 of 1

LF043-B-38-NW-2







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Asbestos Bulk Sampling Data Sheet

General Information

Project: M-11 AFB  
Sampling Date: 6-11-20  
Sample Number: LE43-B-39-NW-2

Sample Location & Description

Lat, Long: 43.052328, -113.832277  
Tribal Name: \_\_\_\_\_

Type of Material

Surface: \_\_\_\_\_  
TGI: \_\_\_\_\_  
Misc: ☒

Condition

Integrity: \_\_\_\_\_  
Fibers: \_\_\_\_\_  
Non-Fibers: ☒

Overall Rating: \_\_\_\_\_

Good: \_\_\_\_\_

Damaged: ☒

Significant Damage: ☒

Percent Damaged: NA %

Localized: \_\_\_\_\_

Distributed: \_\_\_\_\_

Type of Damage

Deterioration: ☒

Water: ☒

Physical: ☒

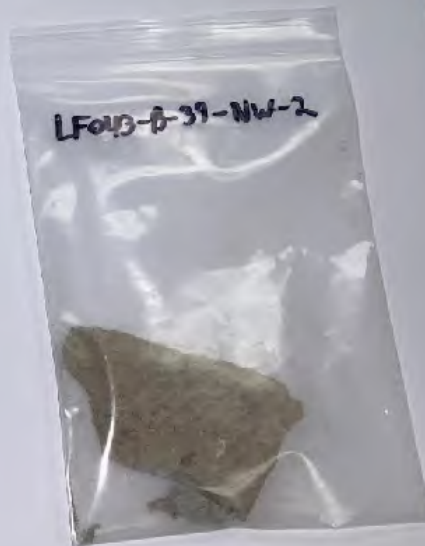
General Comments

Asbestos

Inspector Information

Inspector Name (Print): John Myers Inspector Signature: [Signature]

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Asbestos Bulk Sampling Data Sheet

General Information

Project: M-11 AFB  
Sampling Date: 6-11-20  
Sample Number: LF43-B-40-NW

Sample Location & Description

Lat, Long: 43.052328, -113.840148  
Tribal Name: \_\_\_\_\_

Type of Material

Surface: \_\_\_\_\_  
TGI: \_\_\_\_\_  
Misc: ☒

Condition

Integrity: \_\_\_\_\_  
Fibers: \_\_\_\_\_  
Non-Fibers: ☒

Overall Rating: \_\_\_\_\_

Good: \_\_\_\_\_

Damaged: ☒

Significant Damage: ☒

Percent Damaged: NA %

Localized: \_\_\_\_\_

Distributed: \_\_\_\_\_

Type of Damage

Deterioration: ☒

Water: ☒

Physical: ☒

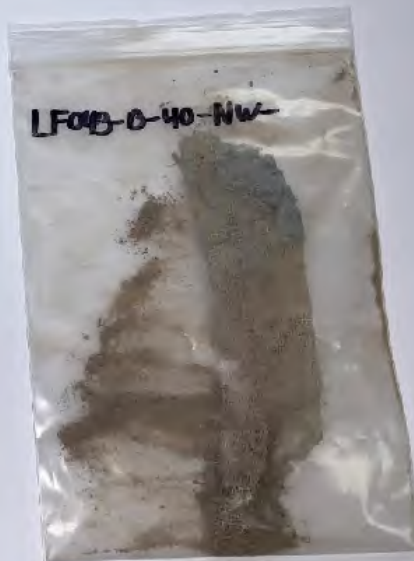
General Comments

\_\_\_\_\_

Inspector Information

Inspector Name (Print): John Myers Inspector Signature: [Signature]

Page \_\_\_\_\_ of \_\_\_\_\_





Asbestos Bulk Sampling Data Sheet

General Information

Project: MHAER

Sampling Date: 6-14-20

Sample Number: LF043-B-41-SE-2

Sample Location & Description

Lat/Long: 43.555121, -115.837593

Place File

Type of Material

Surfacing: ☐

Till: ☐

Misc: ☒

Condition

Friability: ☐

Probable: ☒

Nonfriable: ☐

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damage: N/A %

Localized: ☐

Distributed: ☐

Type of Damage: ☐

Deterioration: ☒

Water: ☒

Physical: ☒

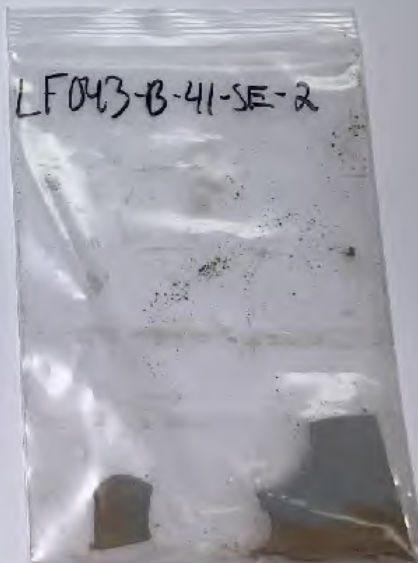
General Comments

Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]

Page 1 of 1



Asbestos Bulk Sampling Data Sheet

General Information

Project: MHAER

Sampling Date: 6-14-20

Sample Number: LF043-B-42-SE-2

Sample Location & Description

Lat/Long: 43.555121, -115.837593

Place File

Type of Material

Surfacing: ☐

Till: ☐

Misc: ☒

Condition

Friability: ☐

Probable: ☒

Nonfriable: ☐

Overall Rating: ☐

Good: ☐

Damaged: ☒

Significant Damage: ☒

Percent Damage: N/A %

Localized: ☐

Distributed: ☐

Type of Damage: ☐

Deterioration: ☒

Water: ☒

Physical: ☒

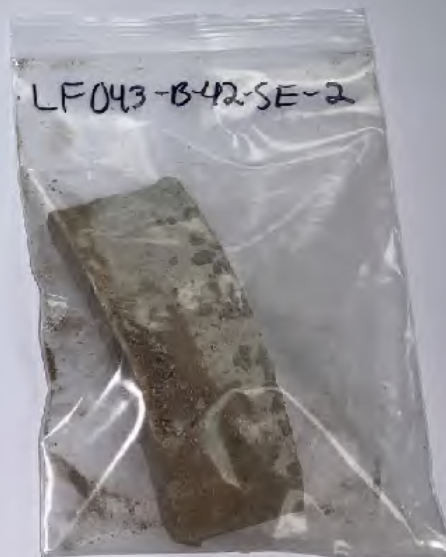
General Comments

Inspector Information

Inspector Name (Print): John Means

Inspector Signature: [Signature]

Page 1 of 1





100 South Progress Avenue, Suite 22  
Mendon, Massachusetts 01945  
www.TheL&RGroup.com

#### Asbestos Bulk Sampling Data Sheet

##### General Information

Project: MARF  
Sampling Date: 6-20  
Sample Number: LF043-B-43-SF-2

##### Sample Location & Description

Location: 43.054724, -115.832441  
Description: Unknown pipe wrap

##### Type of Material

Surfing: ☐  
TSP: ☐  
Msc: ☒

##### Condition

Fracture: ☐  
Fibrous: ☒  
Nonfibrous: ☐

##### Overall Rating

Good: ☐  
Damaged: ☒  
Significant Damage: ☐

##### Percent Damage

44%  
Localized: ☐  
Distributed: ☐

##### Type of Damage

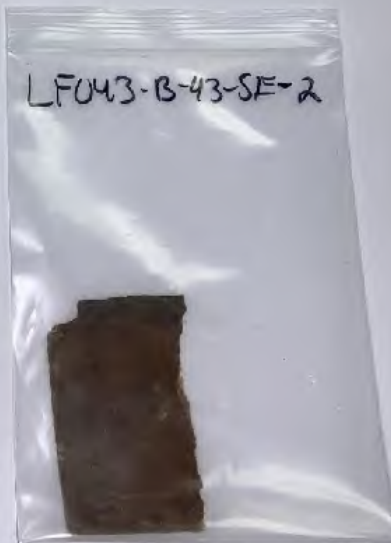
Deterioration: ☒  
Water: ☒  
Physical: ☒

##### General Comments

##### Inspector Information

Inspector Name (Print): John Meers Inspector Signature: [Signature]

Page 1 of 1



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Mendon, Massachusetts 01945  
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#### Asbestos Bulk Sampling Data Sheet

##### General Information

Project: MARF  
Sampling Date: 6-20  
Sample Number: LF043-B-44-SF-2

##### Sample Location & Description

Location: 43.054724, -115.8366  
Description: Unknown pipe wrap

##### Type of Material

Surfing: ☐  
TSP: ☒  
Msc: ☐

##### Condition

Fracture: ☐  
Fibrous: ☒  
Nonfibrous: ☐

##### Overall Rating

Good: ☐  
Damaged: ☒  
Significant Damage: ☐

##### Percent Damage

44%  
Localized: ☐  
Distributed: ☐

##### Type of Damage

Deterioration: ☒  
Water: ☒  
Physical: ☒

##### General Comments

##### Inspector Information

Inspector Name (Print): John Meers Inspector Signature: [Signature]

Page 1 of 1







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Asbestos Bulk Sampling Data Sheet

General Information

Project: MUSEE  
Sampling Date: 6-21-20  
Sample Number: LF043-B-45-SE-2

Sample Location & Description

Lat/Lon: 43.05482, -115.836677  
Transit: 10/20/20

Type of Material

Surfing: ☐  
TSI: ☐  
Misc: ☒

Condition

Friability: ☐  
Friable: ☒  
Nonfriable: ☐

Overall Rating

Good: ☐  
Damaged: ☒

Significant Damage:

Percent Damage: 100%

Localized: ☐  
Distributed: ☐

Type of Damage

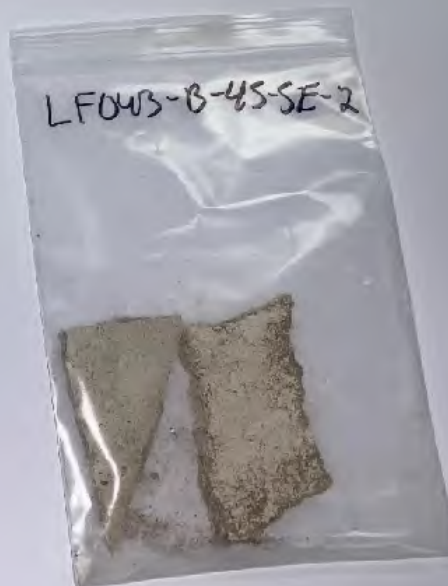
Deterioration: ☒  
Water: ☒  
Physical: ☒

General Comments

Inspector Information

Inspector Name (Print): \_\_\_\_\_ Inspector Signature: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_



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Asbestos Bulk Sampling Data Sheet

General Information

Project: MUSEE  
Sampling Date: 6-21-20  
Sample Number: LF043-B-46-SW-2

Sample Location & Description

Lat/Lon: 43.054346, -115.839344  
Description: Insulation last aluminum

Type of Material

Surfing: ☐  
TSI: ☐  
Misc: ☒

Condition

Friability: ☐  
Friable: ☒  
Nonfriable: ☐

Overall Rating

Good: ☐  
Damaged: ☒

Significant Damage:

Percent Damage: 100%

Localized: ☐  
Distributed: ☐

Type of Damage

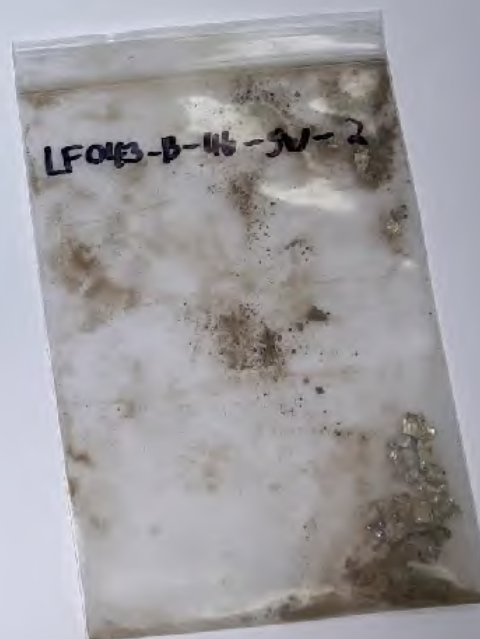
Deterioration: ☒  
Water: ☒  
Physical: ☒

General Comments

Inspector Information

Inspector Name (Print): John Mear Inspector Signature: [Signature]

Page \_\_\_\_ of \_\_\_\_







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Asbestos Bulk Sampling Data Sheet

General Information

Project: SLH 206  
Sampling Date: 6-24-20  
Sample Number: LF043-B-47-SW-2

Sample Location & Description

Lat, Lon: 43.053264, -115.839582  
Red brick like material

Type of Material

Surfacing: ☐  
TSE: ☐  
Misc: ☒

Condition

Friability: ☐  
Friable: ☒  
Nonfriable: ☐

Overall Rating

Good: ☐  
Damaged: ☒

Significant Damage:

Percent Damaged: N/A %

Location:

Distributed: ☐

Type of Damage

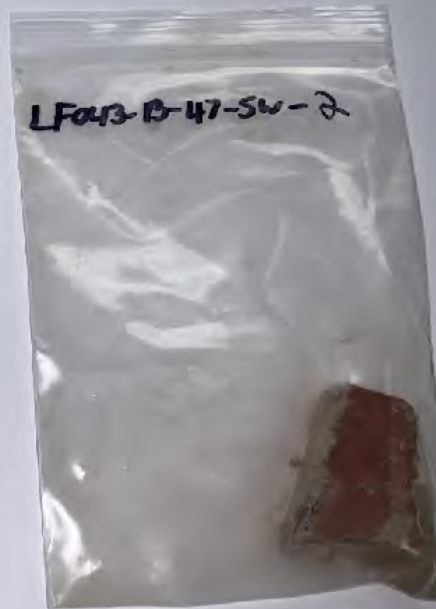
Deterioration: ☒  
Water: ☒  
Physical: ☒

General Comments

Inspector Information

Inspector Name (Print): John Meers Inspector Signature: [Signature]

Page 1 of 1



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Asbestos Bulk Sampling Data Sheet

General Information

Project: MH206  
Sampling Date: 6-24-20  
Sample Number: LF043-B-48-SW-2

Sample Location & Description

Lat, Lon: 43.053295, -115.839582  
Red brick like material

Type of Material

Surfacing: ☐  
TSE: ☐  
Misc: ☒

Condition

Friability: ☐  
Friable: ☒  
Nonfriable: ☐

Overall Rating

Good: ☐  
Damaged: ☒

Significant Damage:

Percent Damaged: N/A %

Location:

Distributed: ☐

Type of Damage

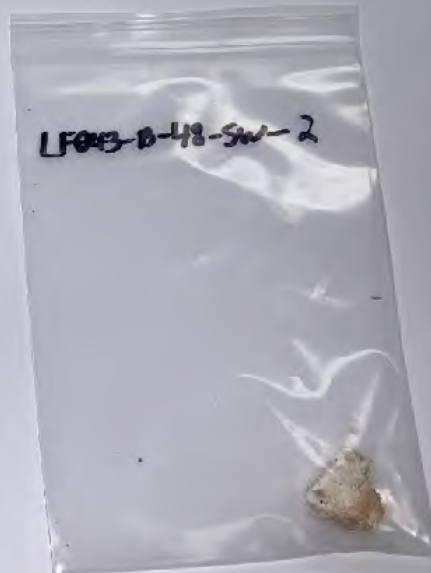
Deterioration: ☒  
Water: ☒  
Physical: ☒

General Comments

Inspector Information

Inspector Name (Print): John Meers Inspector Signature: [Signature]

Page 1 of 1





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Asbestos Bulk Sampling Data Sheet

General Information

Project: MHAES  
Sampling Date: 6-26-20  
Sample Number: LF043-B-49-SW-2

Sample Location & Description

Lat, Lon: 43.05321, -115.83252  
Black tile

Type of Material

Surfacing: ☐  
TSL: ☐  
Misc: ☐

Condition

Friability:  
Friable: ☒  
Nonfriable: ☐

Overall Rating

Good: ☐  
Damaged: ☒

Significant Damage:

Percent Damaged: 100 %  
Localized: ☐  
Distributed: ☐

Type of Damage

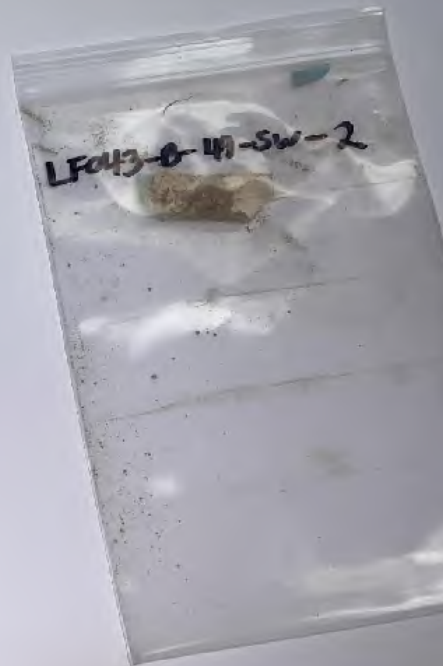
Deterioration: ☒  
Water: ☒  
Physical: ☒

General Comments

Inspector Information

Inspector Name (Print): John Mias Inspector Signature: [Signature]

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Asbestos Bulk Sampling Data Sheet

General Information

Project: MHAES  
Sampling Date: 6-26-20  
Sample Number: LF043-B-50-SW

Sample Location & Description

Lat, Lon: 43.05319, -115.83252  
Unknown Ceramic tile material

Type of Material

Surfacing: ☐  
TSL: ☐  
Misc: ☒

Condition

Friability:  
Friable: ☒  
Nonfriable: ☐

Overall Rating

Good: ☐  
Damaged: ☒

Significant Damage:

Percent Damaged: 100 %  
Localized: ☐  
Distributed: ☐

Type of Damage

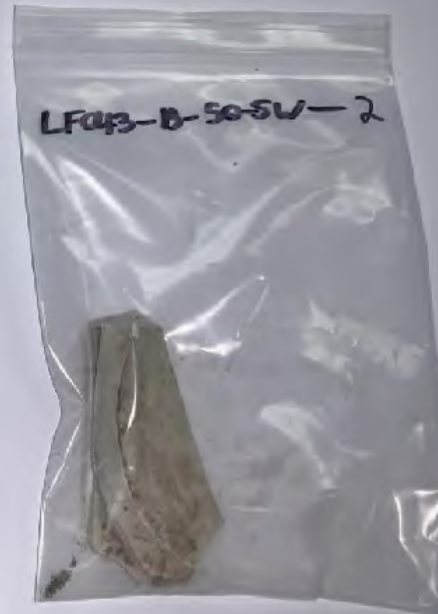
Deterioration: ☒  
Water: ☒  
Physical: ☒

General Comments

Inspector Information

Inspector Name (Print): John Mias Inspector Signature: [Signature]

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## Appendix C: Asbestos Bulk Sampling Location Photographs

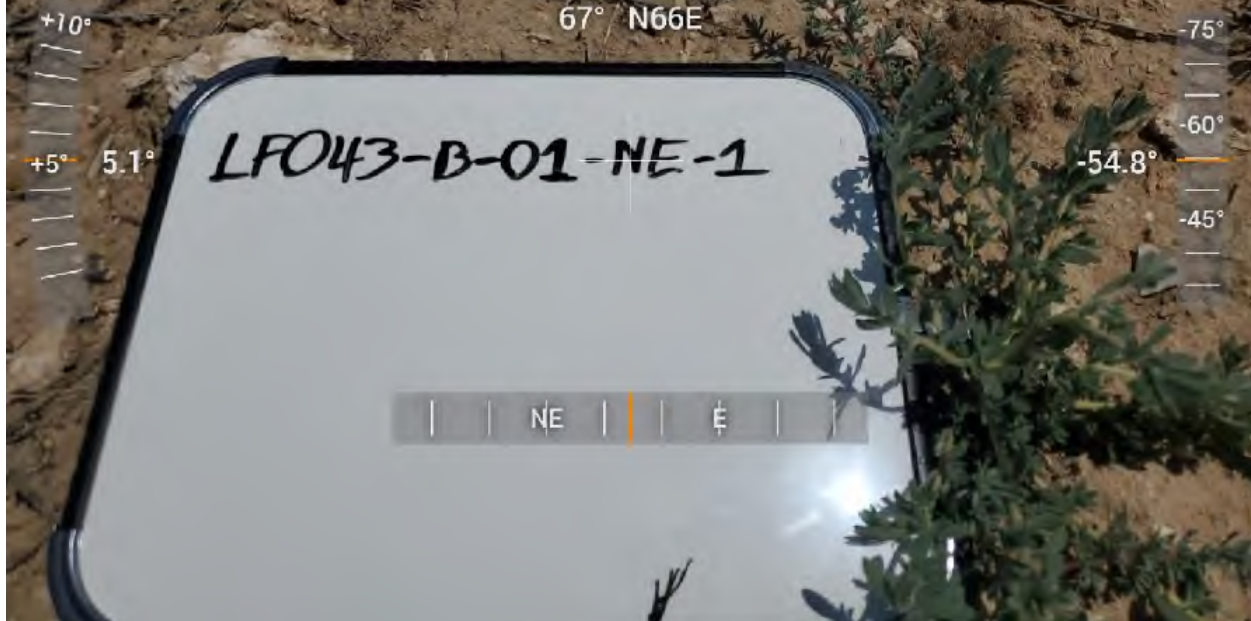
*This page is intentionally left blank.*

LF043-B-01-NE-1

ceramic-like

UTC: 2020.06.03T19:28:03Z  
Lat, Lon: 43.056053, -115.837764  
Alt: 909m MSL WGS84  
CEP: 4m

Azimuth and Bearing  
67° N66E



LF043-B-02-NE-1

black rubber-like material

UTC: 2020.06.03T19:32:24Z  
Lat, Lon: 43.056, -115.837718  
Alt: 905.2m MSL WGS84  
CEP: 4m

Azimuth and Bearing  
123° S33E





LF043-B-03-NE-1

fiberboard

UTC: 2020.06.03T19:36:30Z  
Lat, Lon: 43.056024, -115.837553  
Alt: 904.4m MSL WGS84  
CEP: 4m

Azimuth and Bearing  
56° N56E



LF043-B-04-NE-1

insulation

UTC: 2020.06.03T19:39:27Z  
Lat, Lon: 43.055805, -115.837444  
Alt: 904.8m MSL WGS84  
CEP: 7m

Azimuth and Bearing  
24° N23E





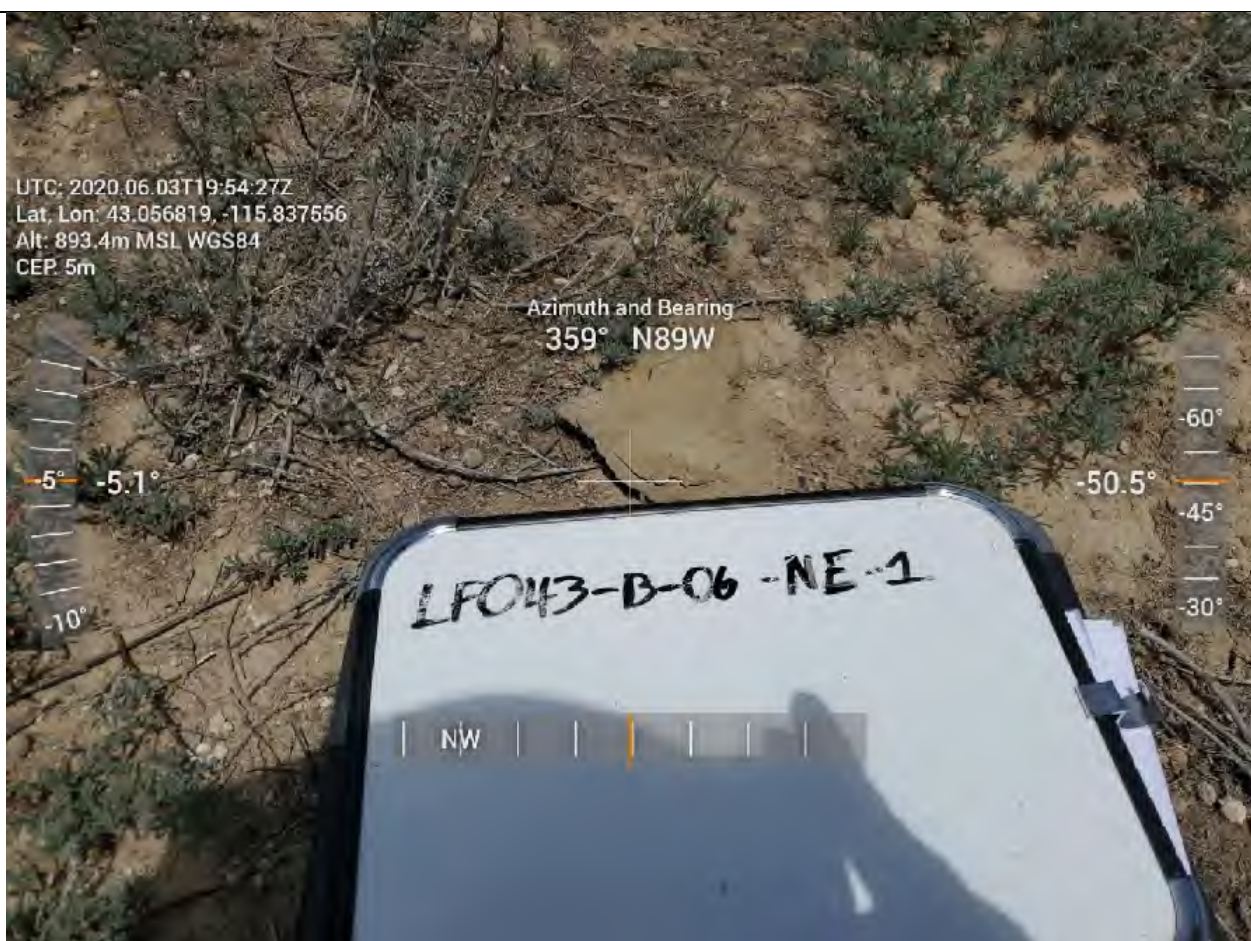
LF043-B-05-NE-1

black  
rubber/plastic  
pipe



LF043-B-06-NE-1

foam





LF043-B-07-NE-1

fiberboard



LF043-B-08-NE-1

vinyl tile





LF043-B-09-  
NE-1

plastic pipe

UTC: 2020.06.03T20:12:39Z  
Lat, Lon: 43.057365, -115.836612  
Alt: 904.2m MSL WGS84  
CEP: 4m

Azimuth and Bearing  
145° S55E



LF043-B-10-  
NE-1

foam

UTC: 2020.06.03T20:14:07Z  
Lat, Lon: 43.057365, -115.836655  
Alt: 905m MSL WGS84  
CEP: 4m

Azimuth and Bearing  
5° N4E





LF043-B-11-  
NE-1

plastic pipe

UTC: 2020.06.03T20:20:07Z  
Lat, Lon: 43.056647, -115.836718  
Alt: 900m MSL WGS84  
CEP: 5m



LF043-B-12-  
NE-1

transite-like  
material

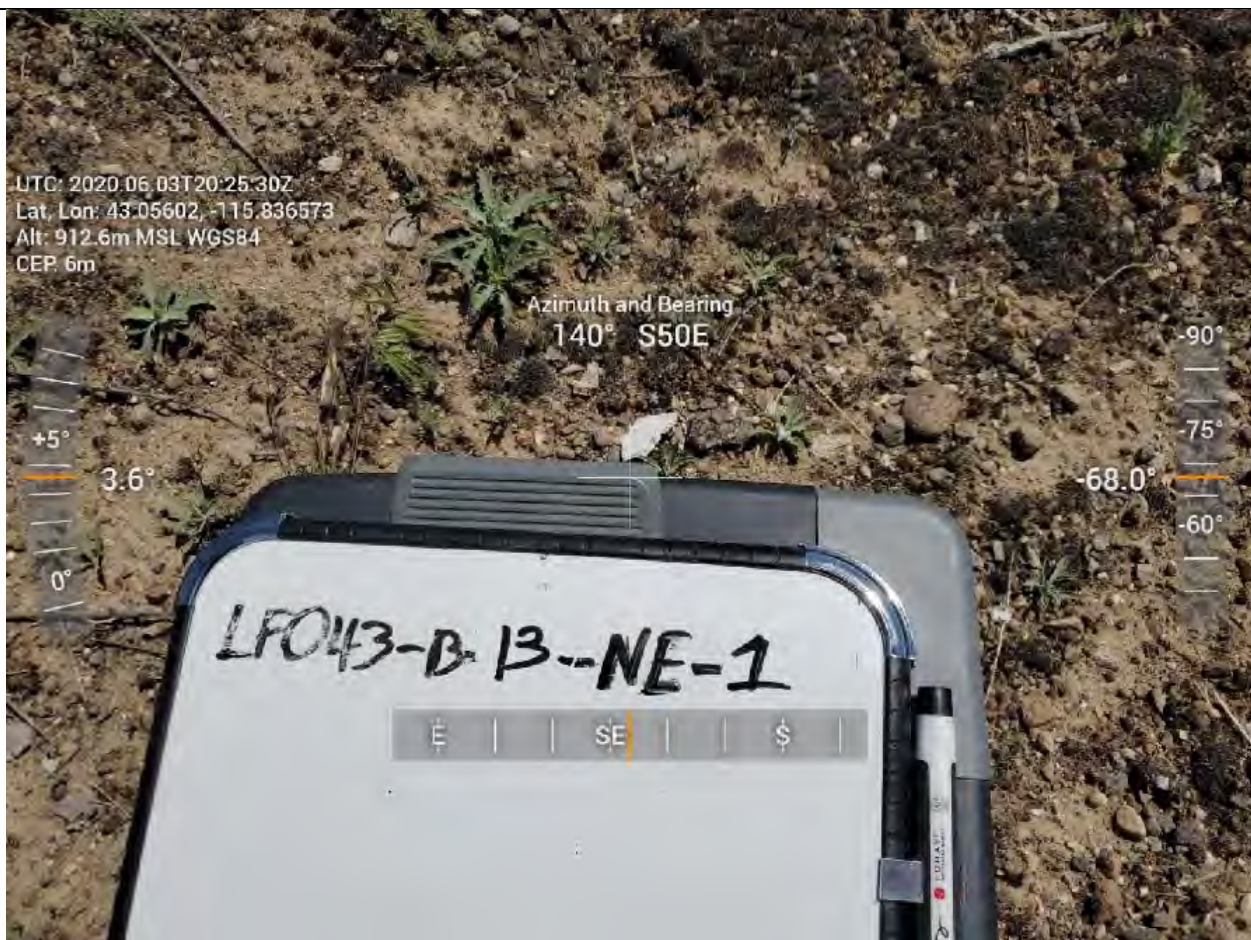
UTC: 2020.06.03T20:22:12Z  
Lat, Lon: 43.056427, -115.83668  
Alt: 893.2m MSL WGS84  
CEP: 5m





LF043-B-13-NE-1

plaster-like material



LF043-B-14-NE-1

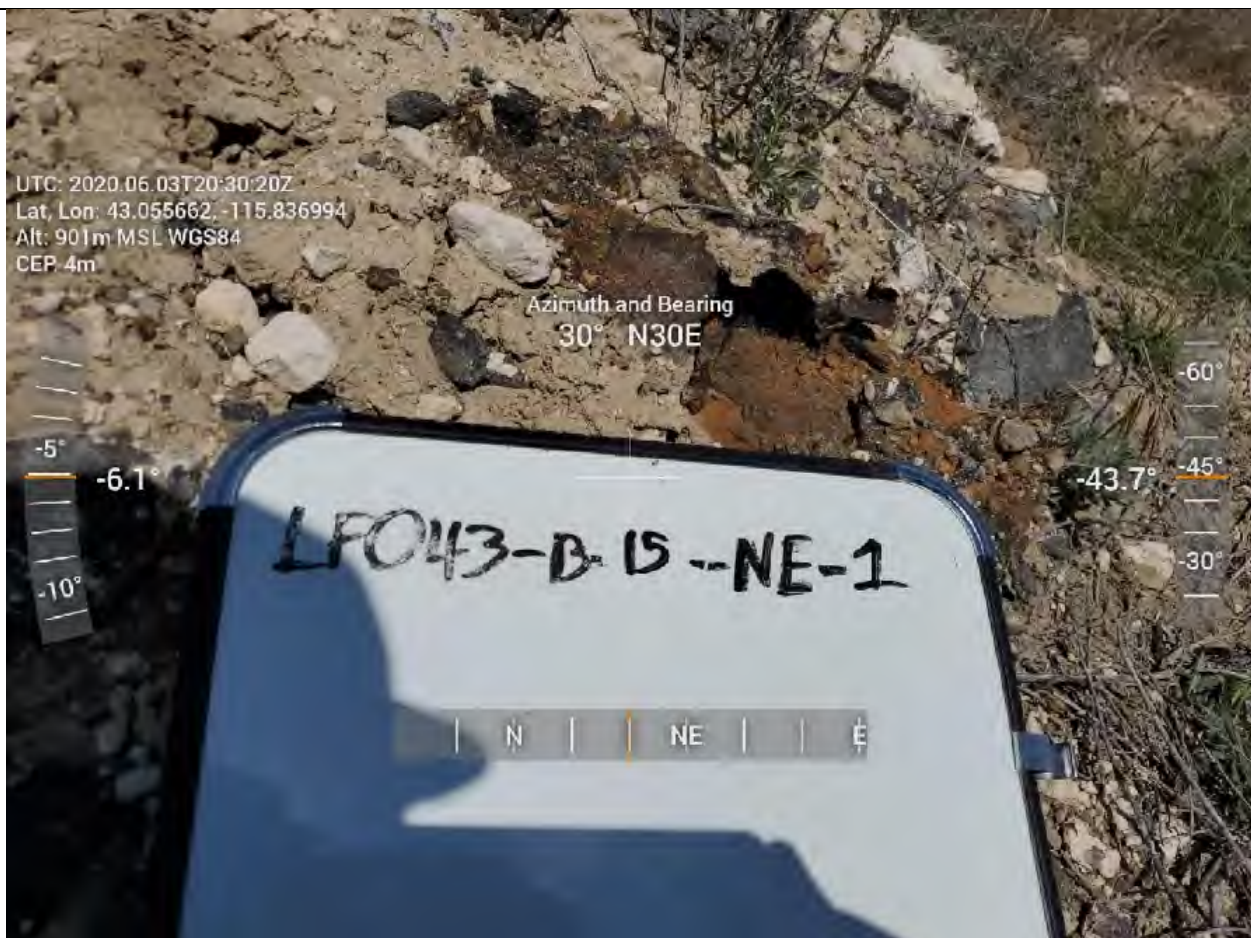
asphalt





LF043-B-15-NE-1

metal pipe  
with tar-like  
coating



LF043-B-16-NE-1

black plastic





LF043-B-17-  
NE-1

painted  
fiberboard



LF043-B-18-  
NE-1

foam with  
aluminum  
insulation





LF043-B-19-  
NE-1

mastic on  
brick

UTC: 2020.06.03T20:46:53Z  
Lat, Lon: 43.05618, -115.838324  
Alt: 903.3m MSL WGS84  
CEP: 4m

Azimuth and Bearing  
83° N83E



LF043-B-20-  
NE-1

ceramic tile

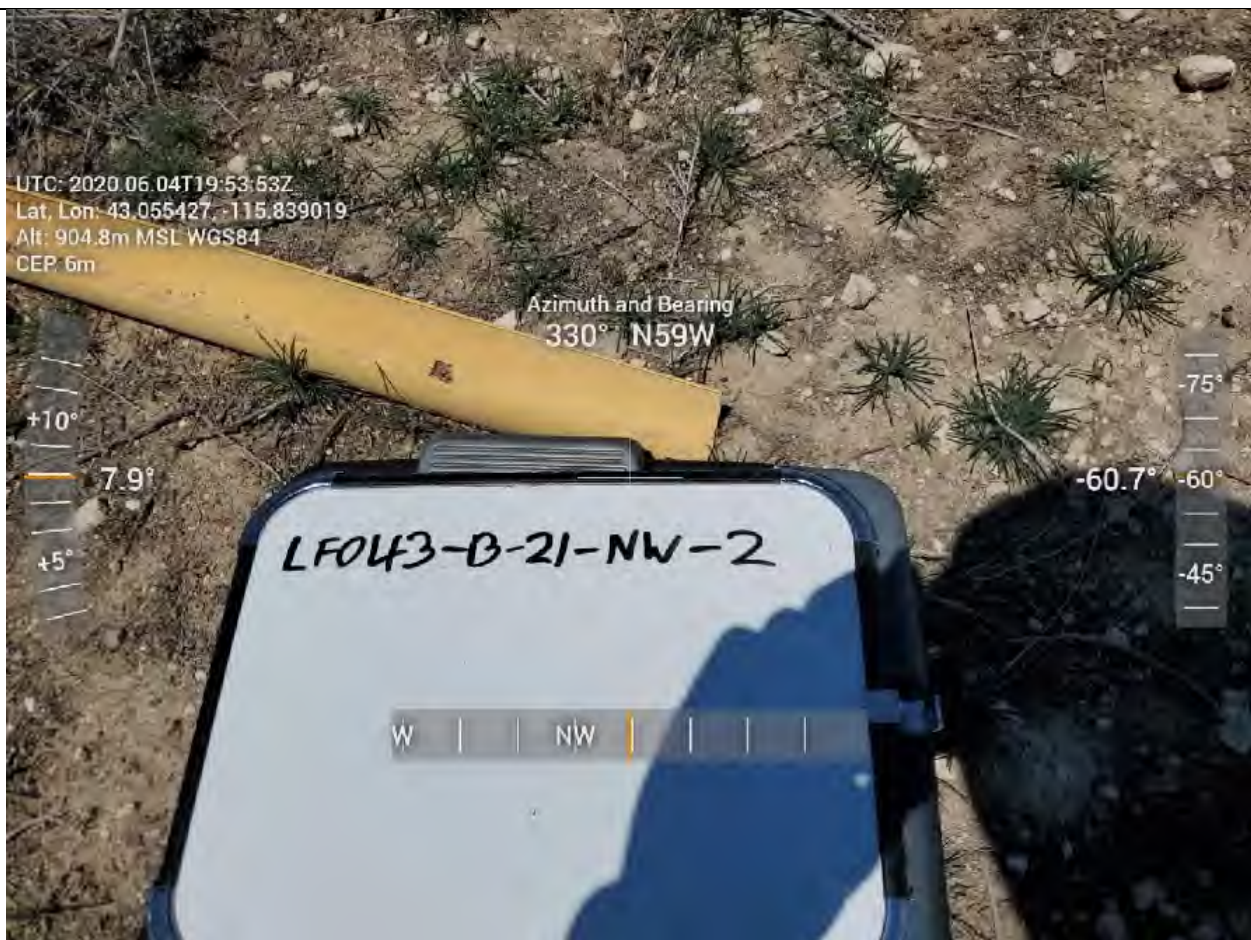
UTC: 2020.06.03T21:11:50Z  
Lat, Lon: 43.055489, -115.83766  
Alt: 904.5m MSL WGS84  
CEP: 4m

Azimuth and Bearing  
357° N87W





LF043-B-21-  
NW-2  
plastic



LF043-B-22-  
NW-2  
roofing  
shingle





LF043-B-23-  
NW-2

fibrous  
material with  
mastic

UTC: 2020.06.04T20:15:00Z  
Lat, Lon: 43.05615, -115.839002  
Alt: 906.9m MSL WGS84  
CEP: 4m



LF043-B-24-  
NW-2

fibrous  
plastic

UTC: 2020.06.04T20:20:04Z  
Lat, Lon: 43.057321, -115.838701  
Alt: 905.2m MSL WGS84  
CEP: 4m





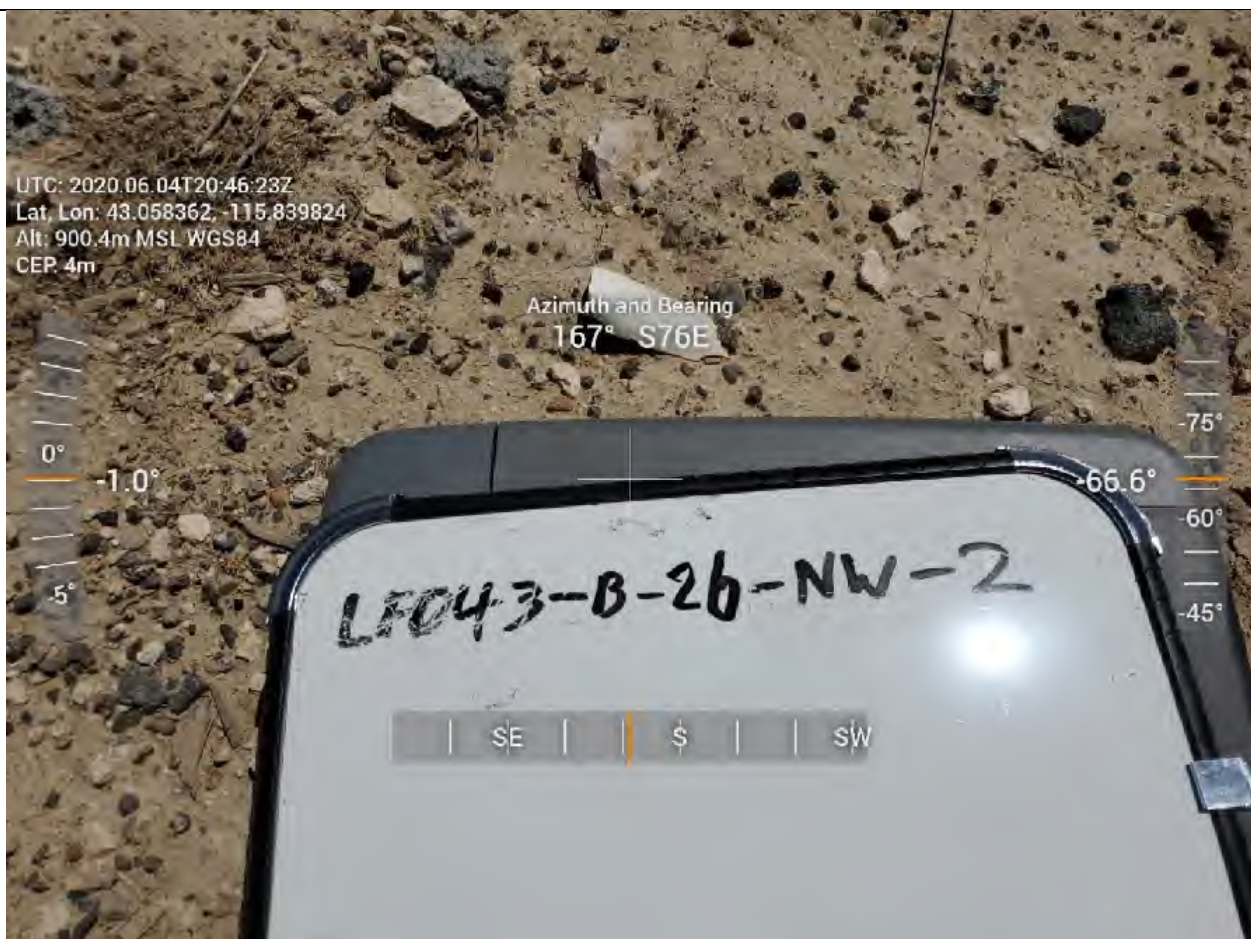
LF043-B-25-  
NW-2

tile-like  
material



LF043-B-26-  
NW-2

PVC pipe





LF043-B-27-  
NW-2

roofing  
shingle



LF043-B-28-  
NW-2

transite pipe





LF043-B-29-  
NW-2

transite pipe

UTC: 2020.06.04T20:51:45Z  
Lat, Lon: 43.059209, -115.839923  
Alt: 894.3m MSL WGS84  
CEP: 6m

Azimuth and Bearing  
228° S47W

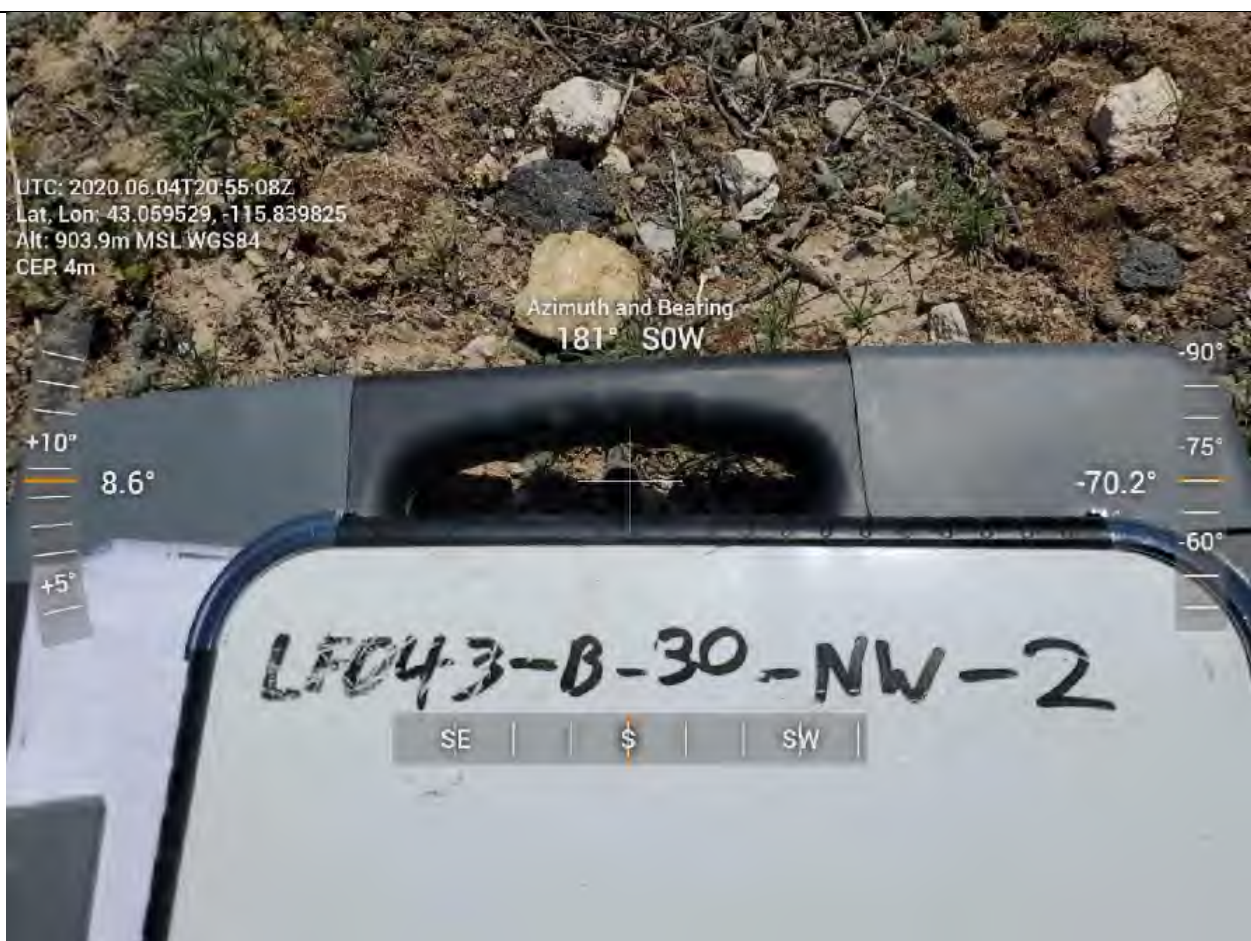


LF043-B-30-  
NW-2

foam

UTC: 2020.06.04T20:55:08Z  
Lat, Lon: 43.059529, -115.839825  
Alt: 903.9m MSL WGS84  
CEP: 4m

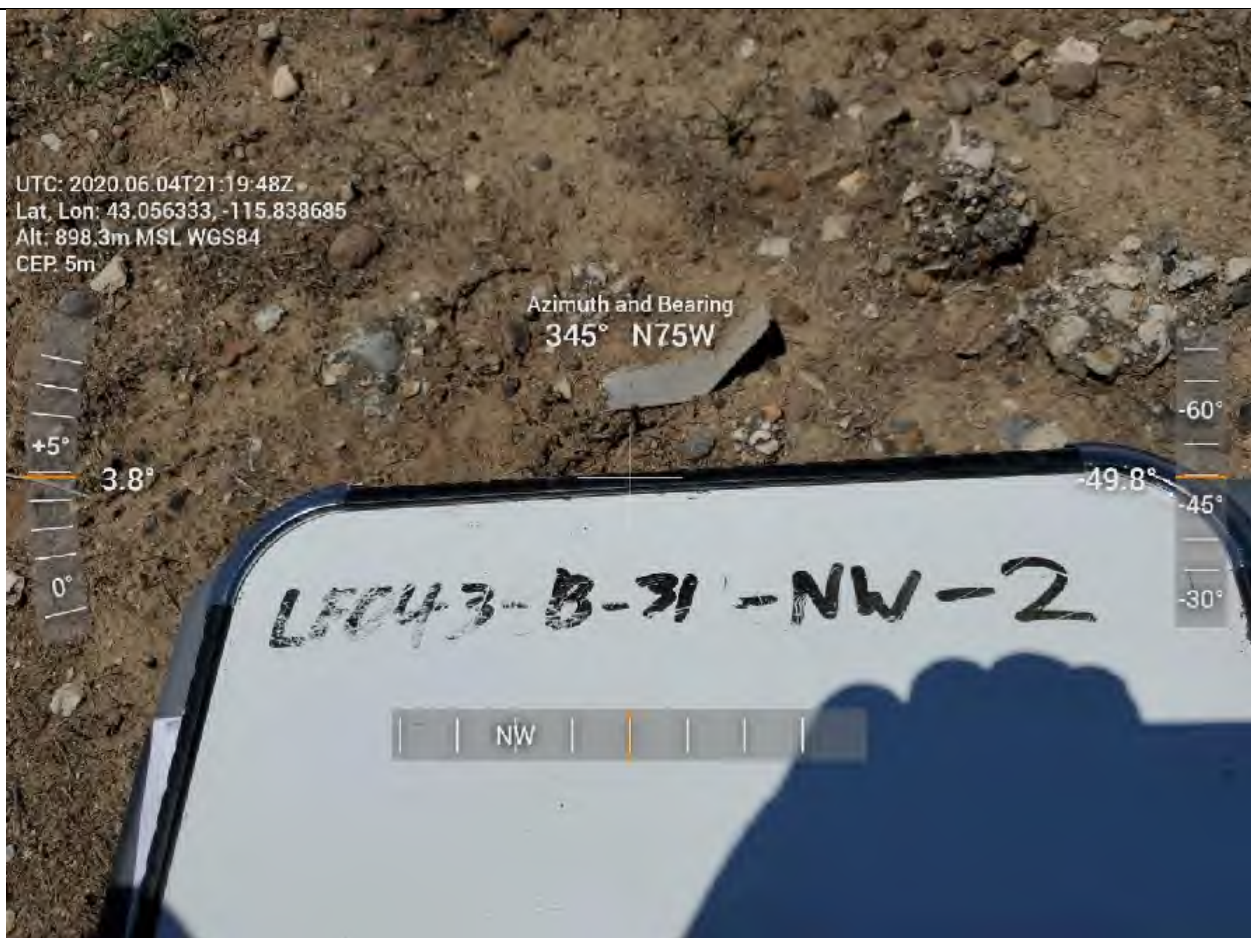
Azimuth and Bearing  
181° S0W





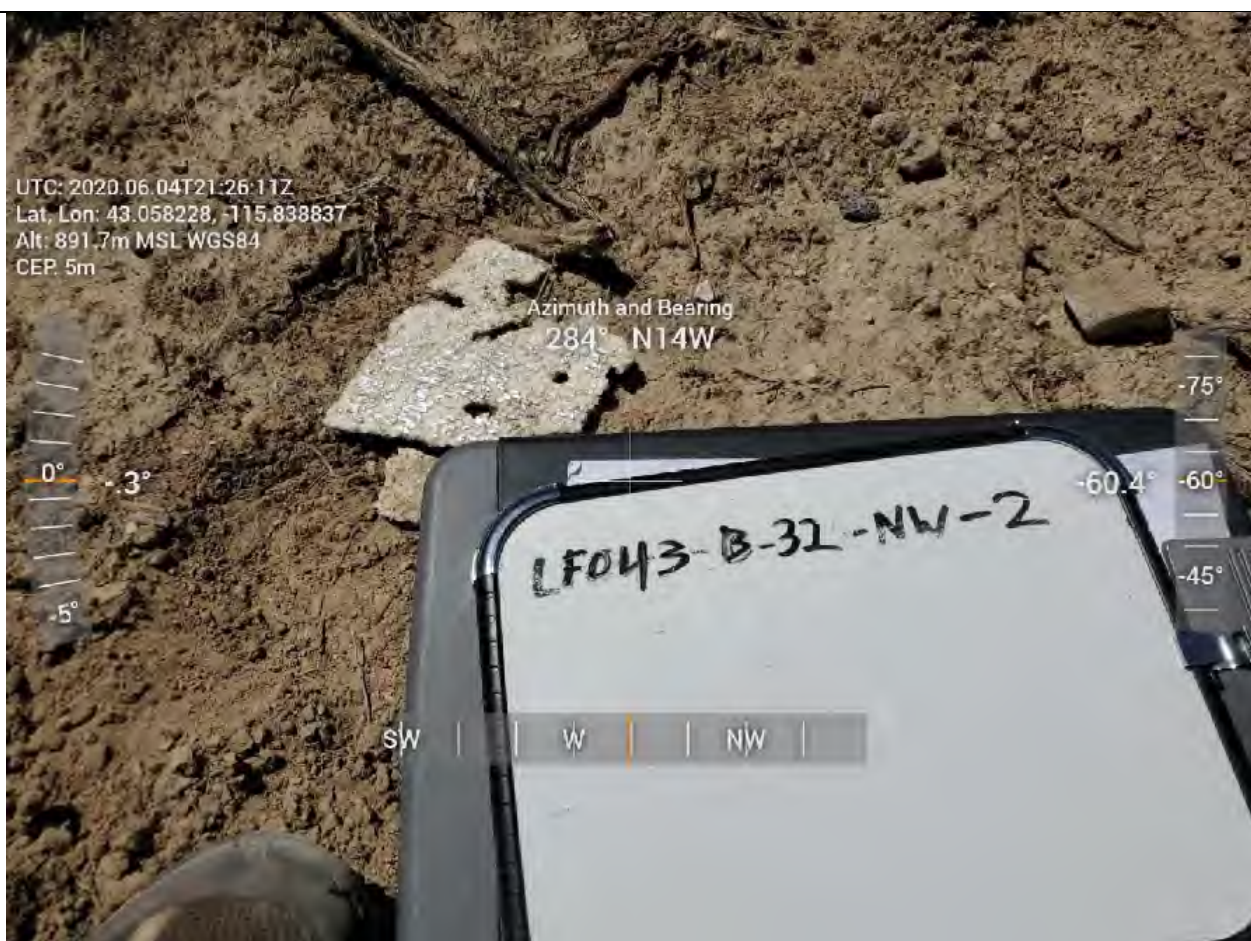
LF043-B-31-  
NW-2

fibrous  
material



LF043-B-32-  
NW-2

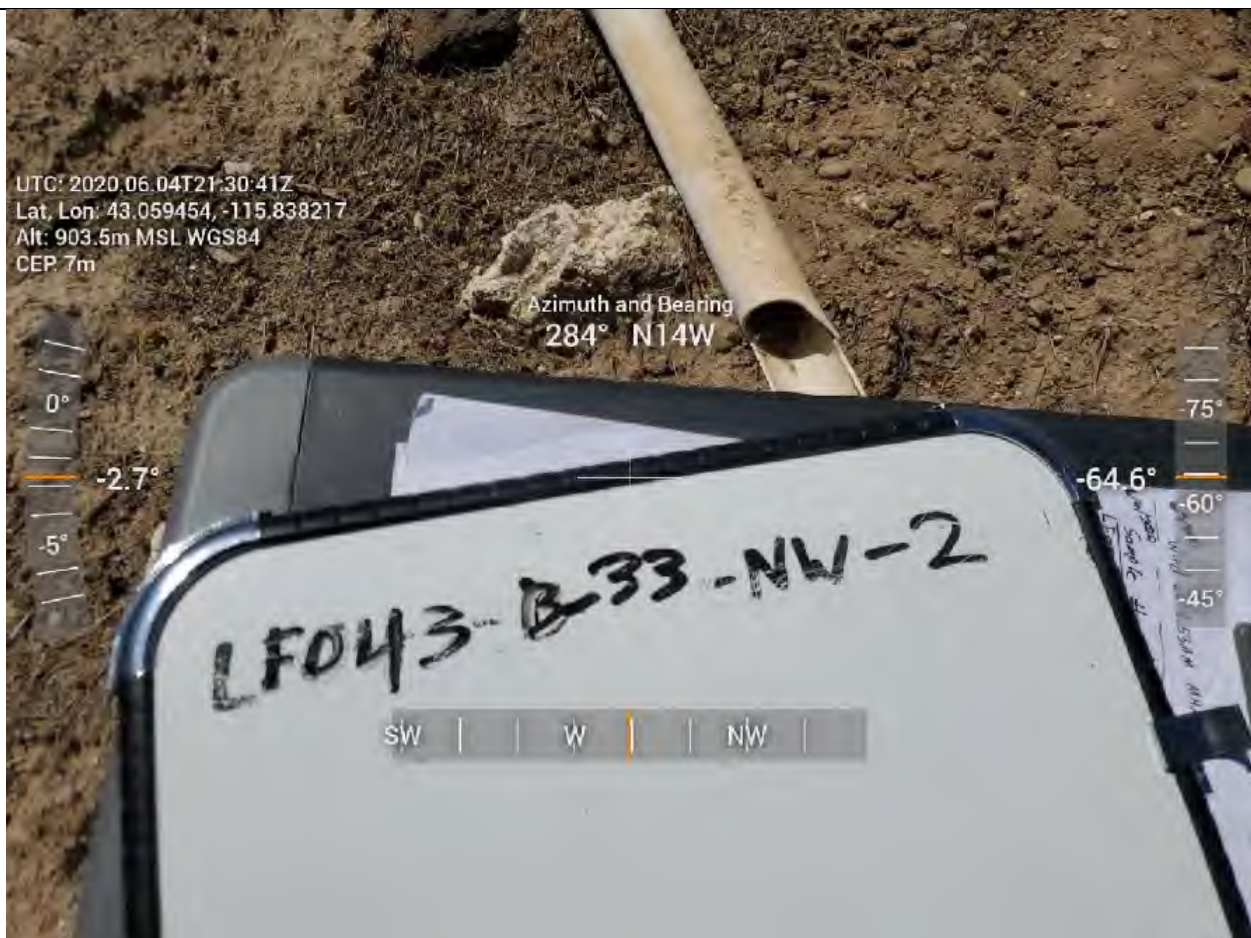
foam  
insulation  
with  
aluminum





LF043-B-33-  
NW-2

plastic tubing



LF043-B-34-  
NW-2

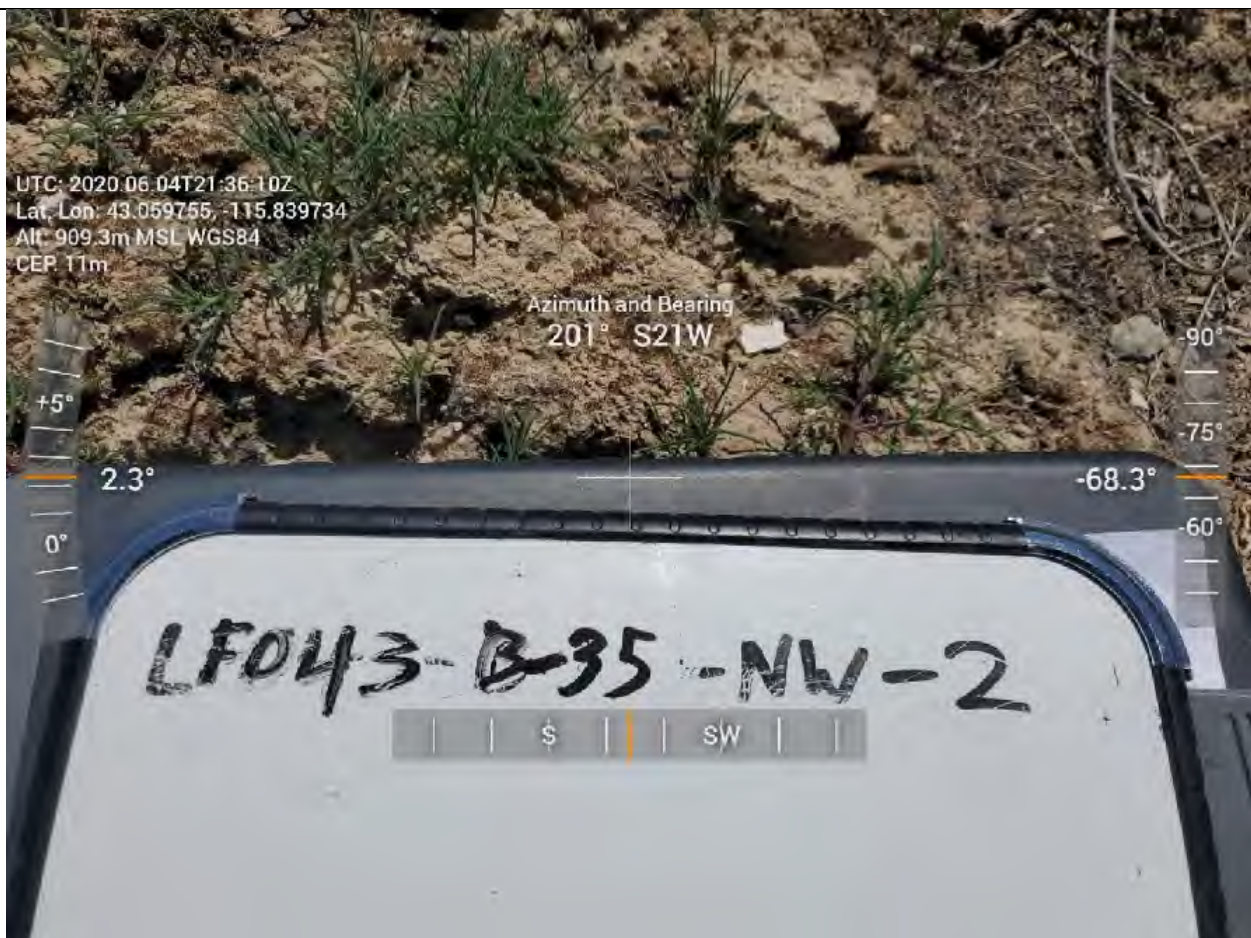
plastic





LF043-B-35-  
NW-2

vinyl tile with  
mastic



LF043-B-36-  
NW-2

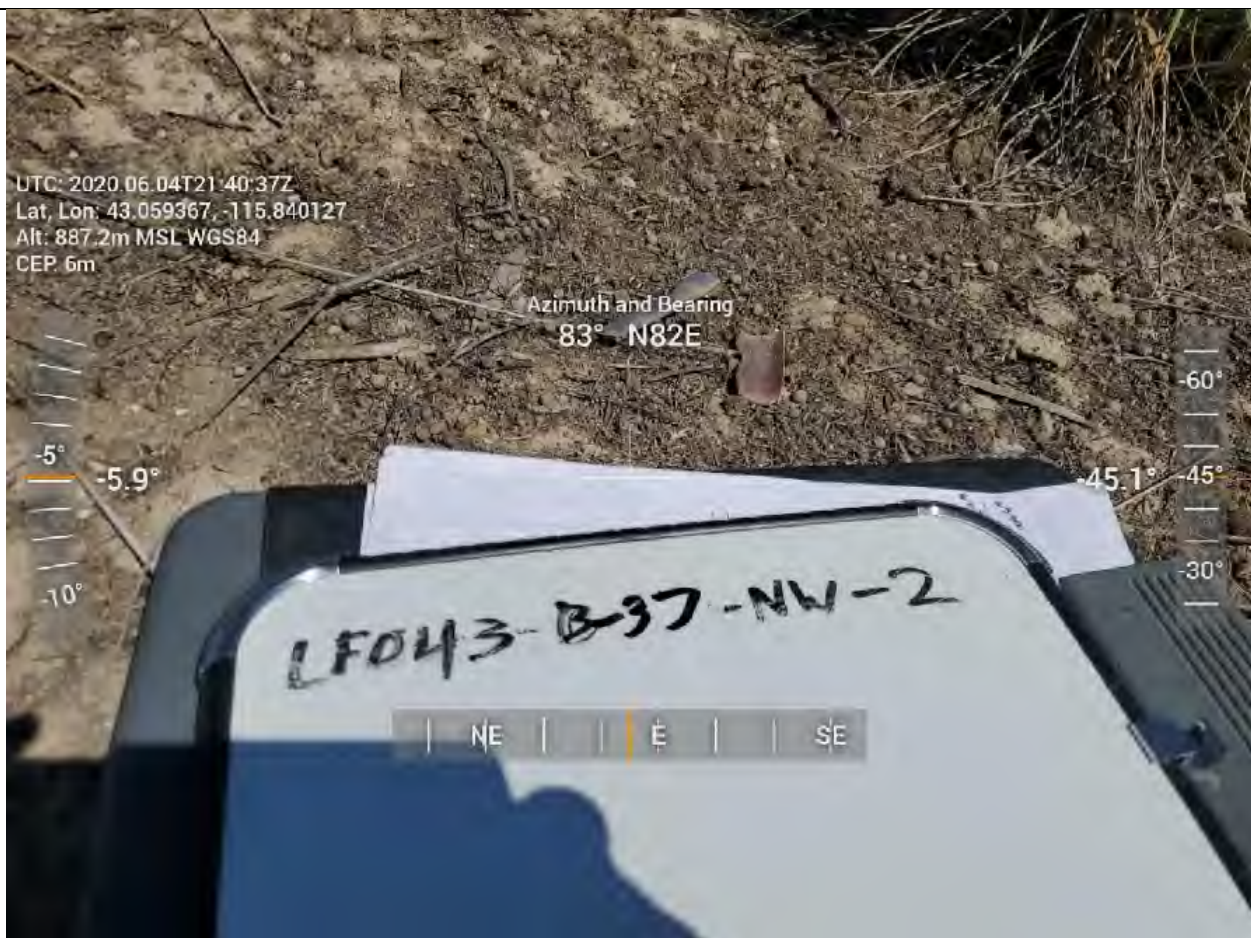
transite pipe





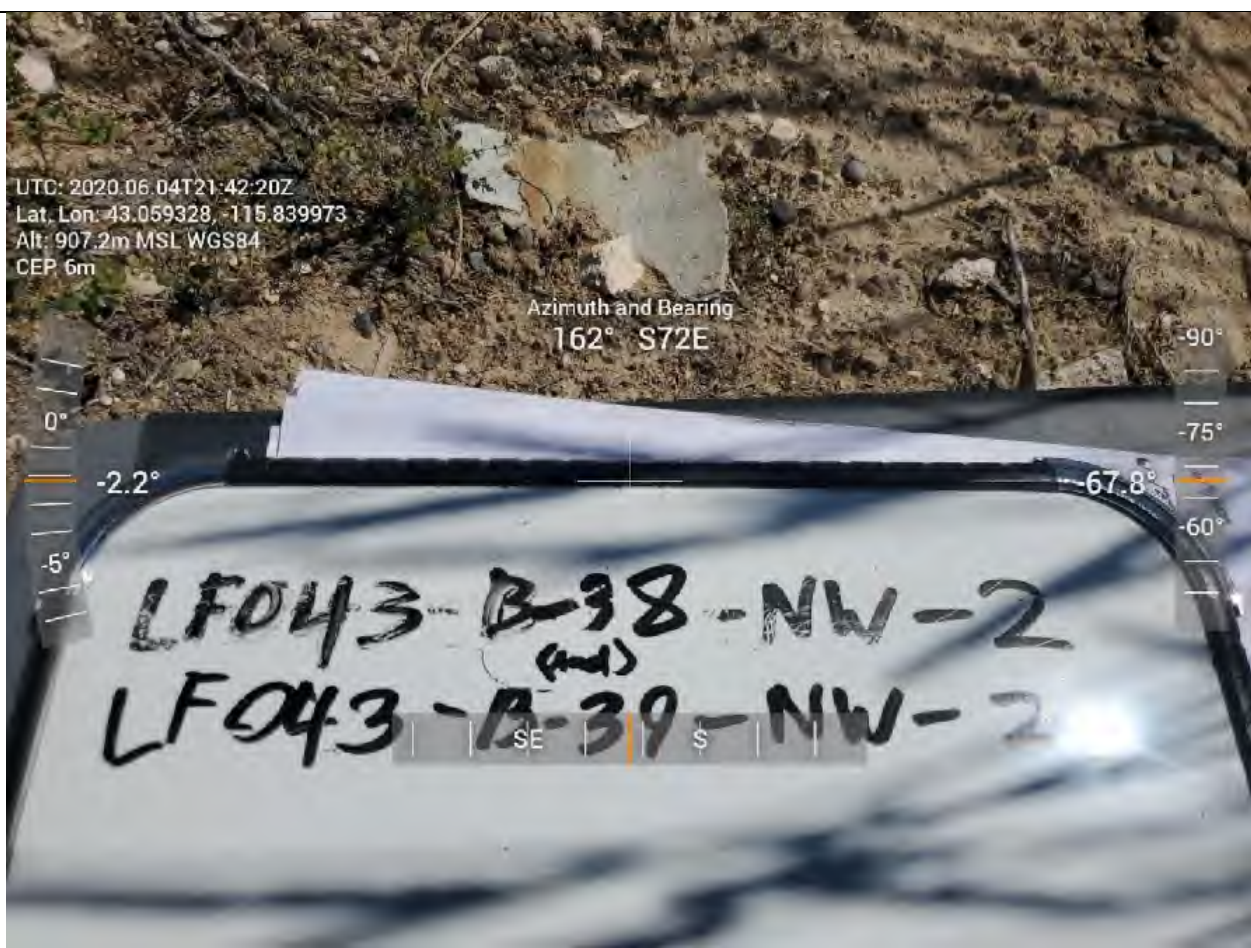
LF043-B-37-  
NW-2

brown plastic  
tubing



LF043-B-38-  
NW-2

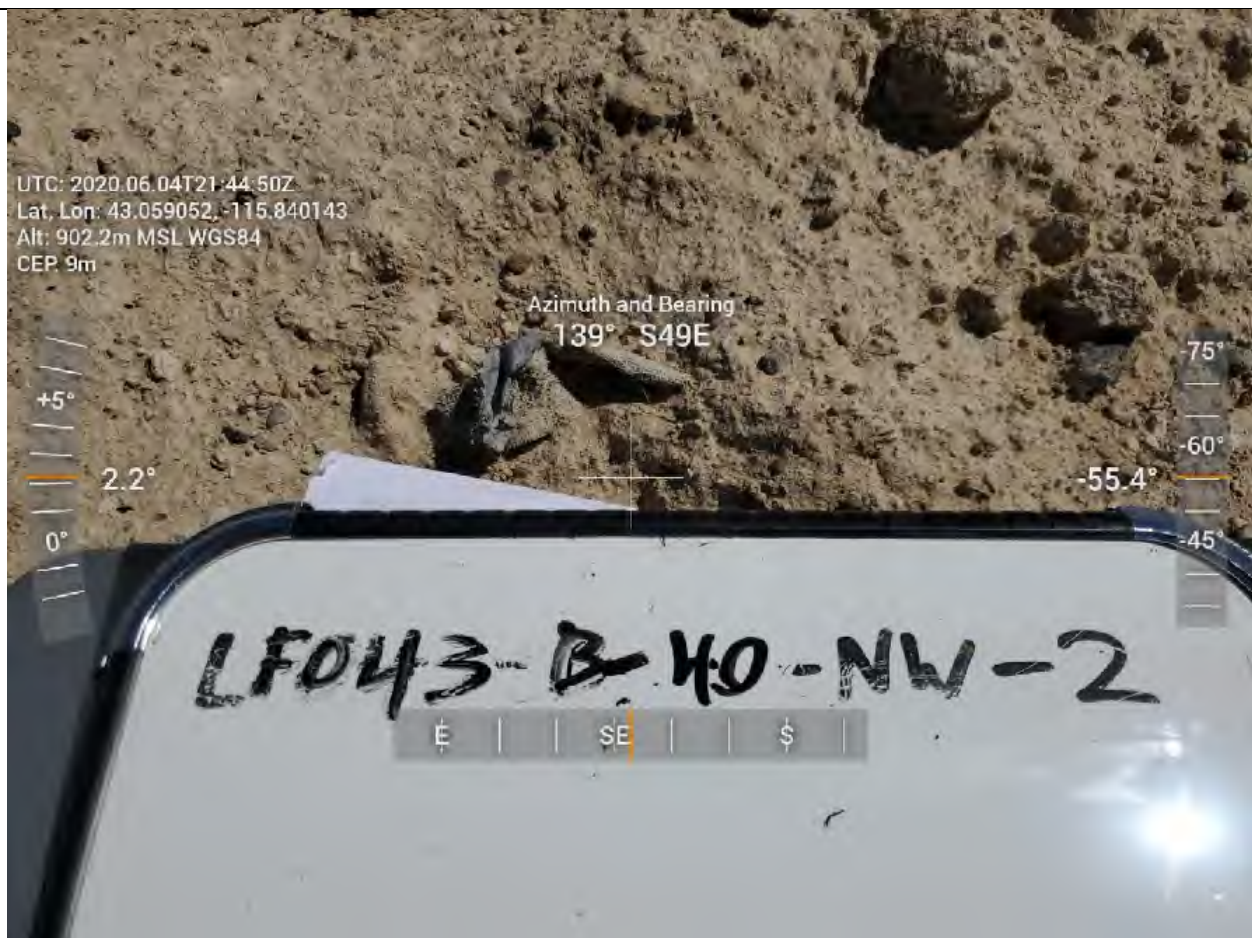
transite





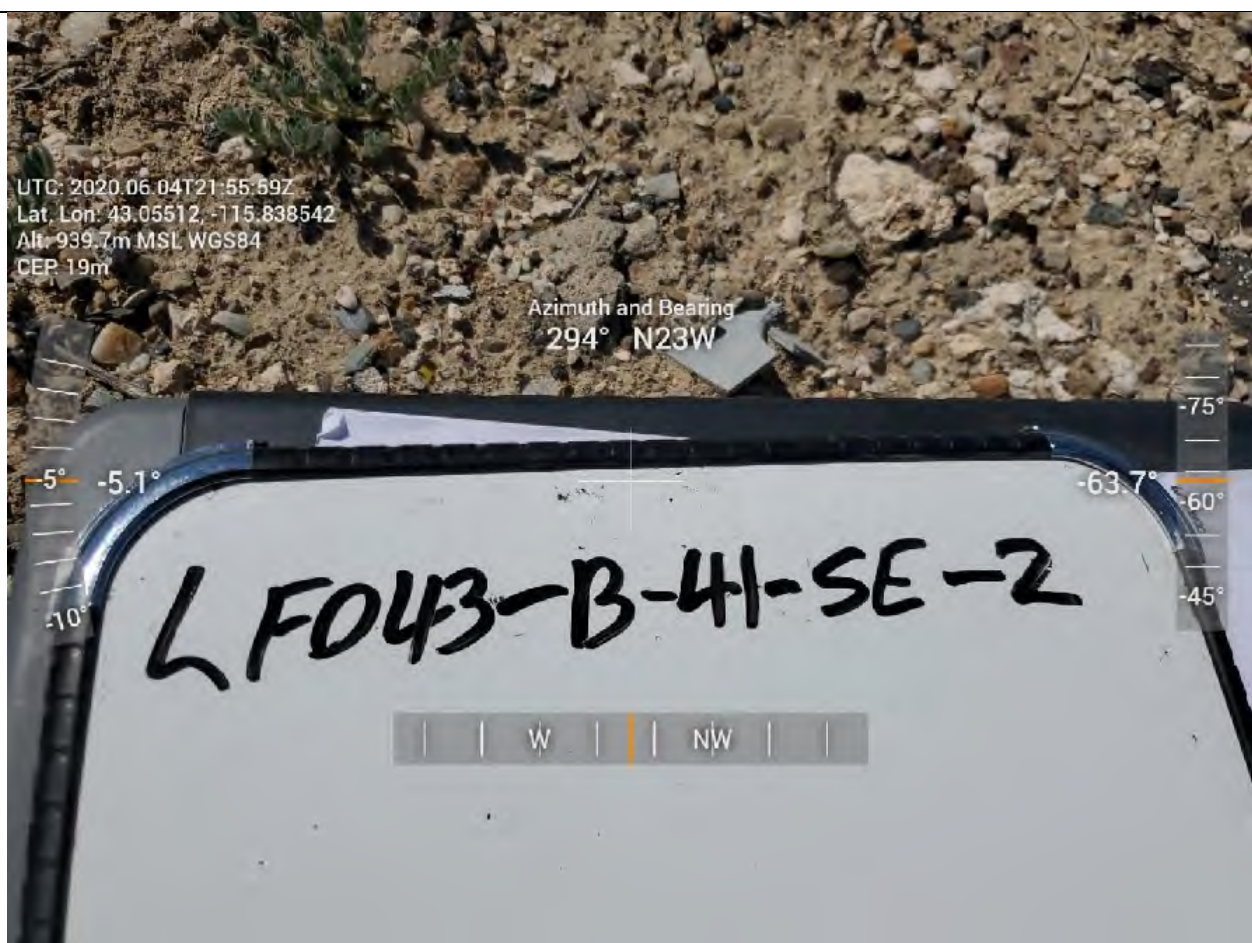
LF043-B-40-  
NW-2

mesh tape



LF043-B-41-  
SE-2

blue tile





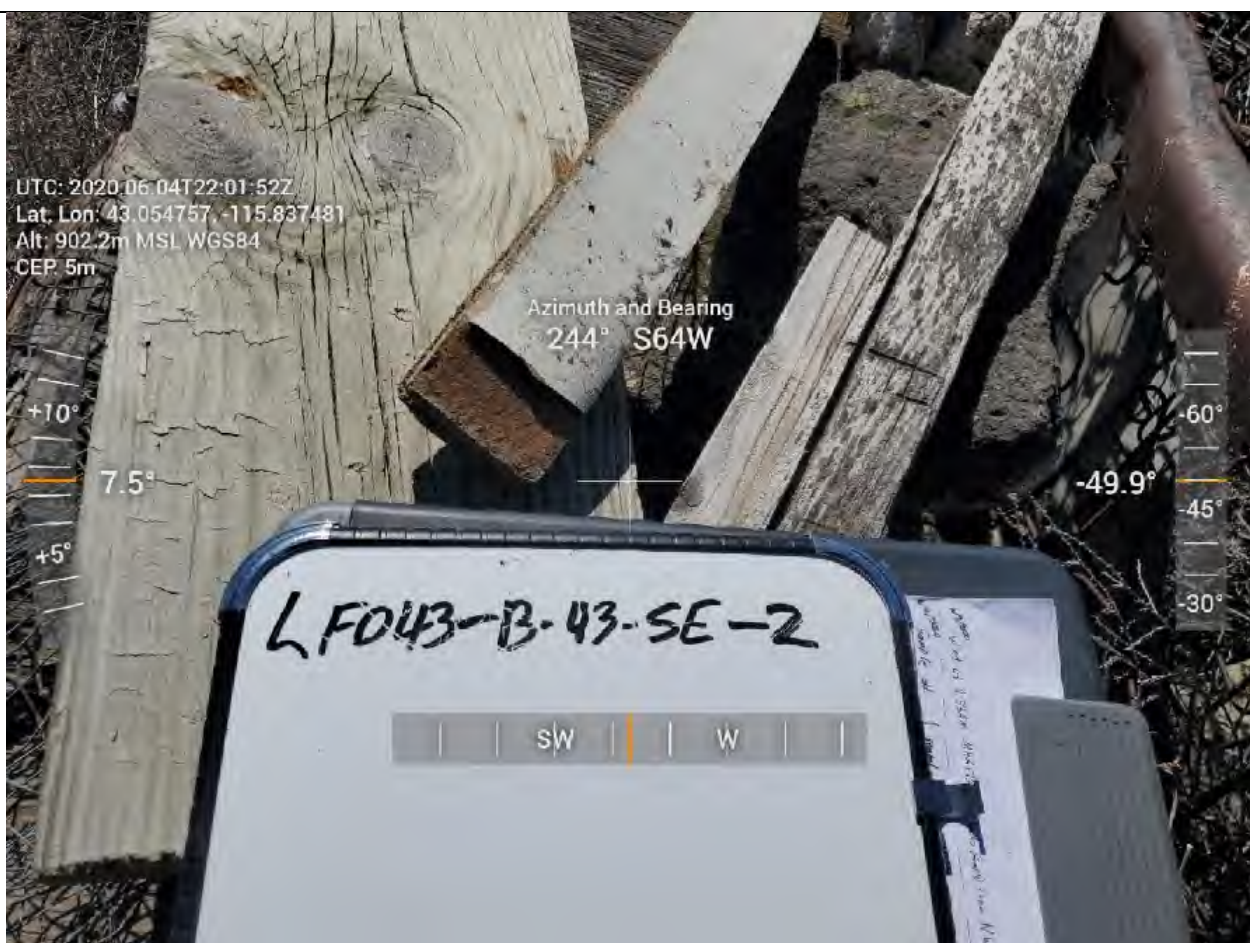
LF043-B-42-  
SE-2

transite pipe



LF043-B-43-  
SE-2

laminare





LF043-B-44-  
SE-2

pipe wrap

UTC: 2020.06.04T22:04:40Z  
Lat, Lon: 43.054702, -115.8366  
Alt: 901.8m MSL WGS84  
CEP: 4m

Azimuth and Bearing  
276° N6W

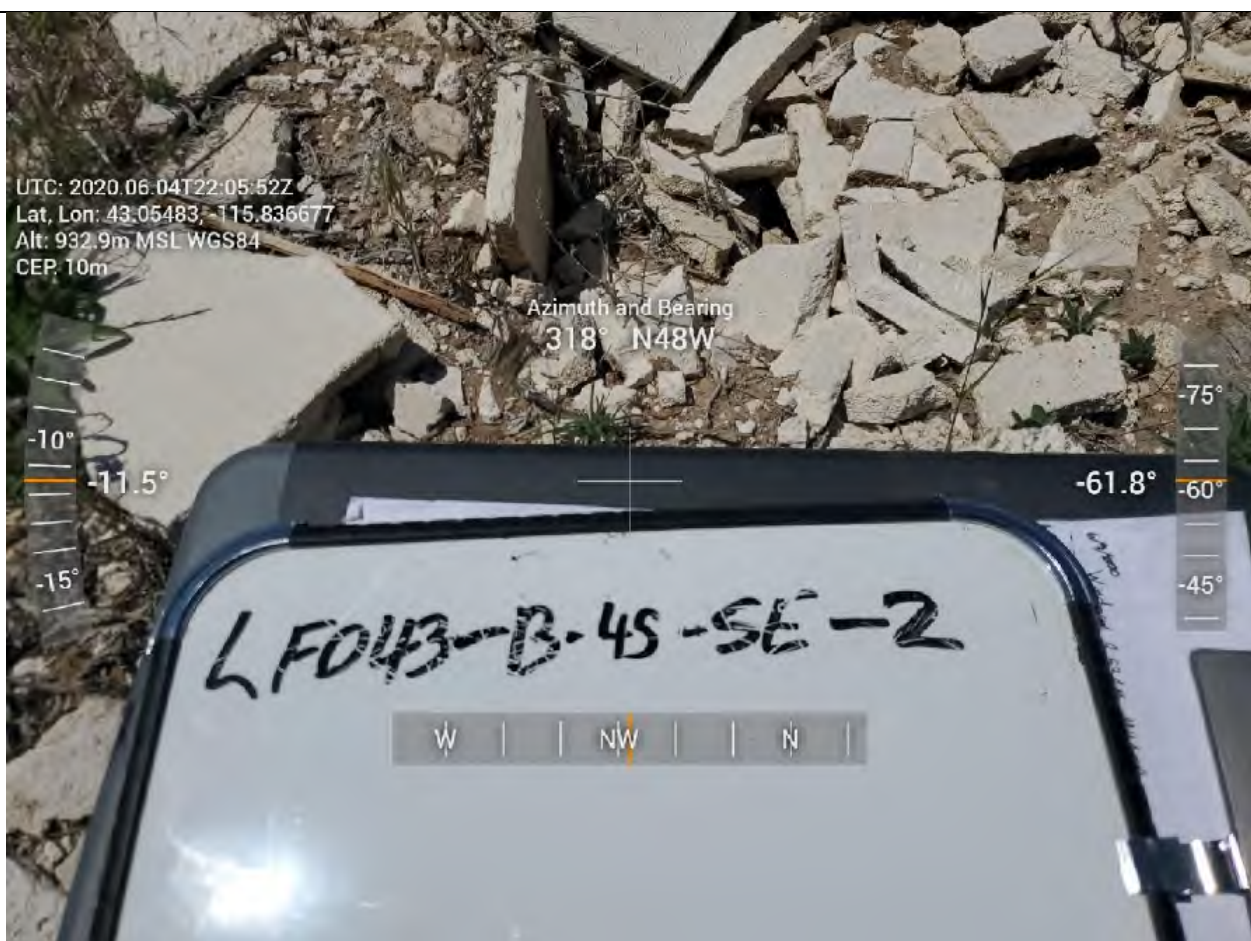


LF043-B-45-  
SE-2

transite and  
brick

UTC: 2020.06.04T22:05:52Z  
Lat, Lon: 43.05483, -115.836677  
Alt: 932.9m MSL WGS84  
CEP: 10m

Azimuth and Bearing  
318° N48W





LF043-B-46-SW-2

insulation  
with  
aluminum



LF043-B-47-SW-2

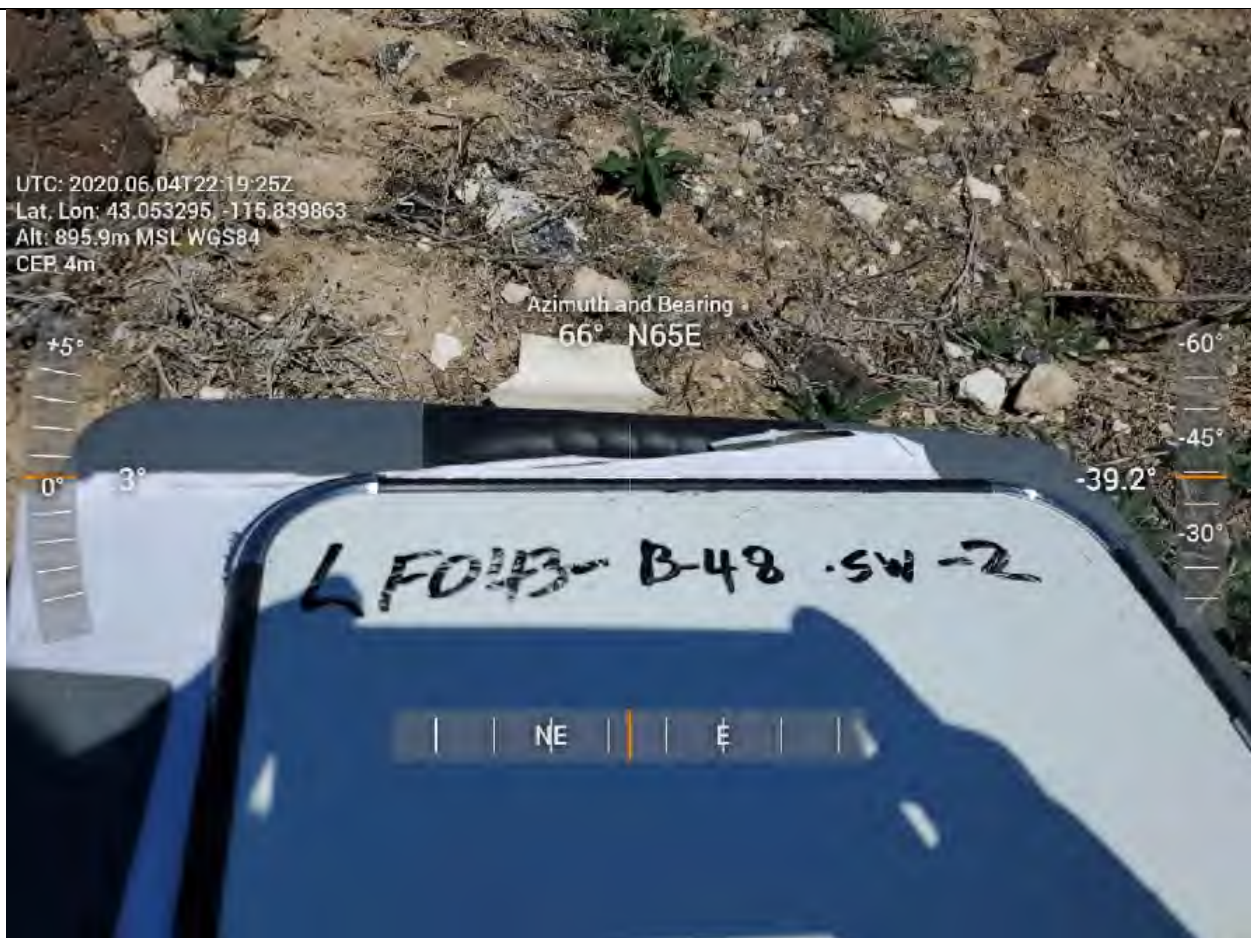
red brick-like  
material





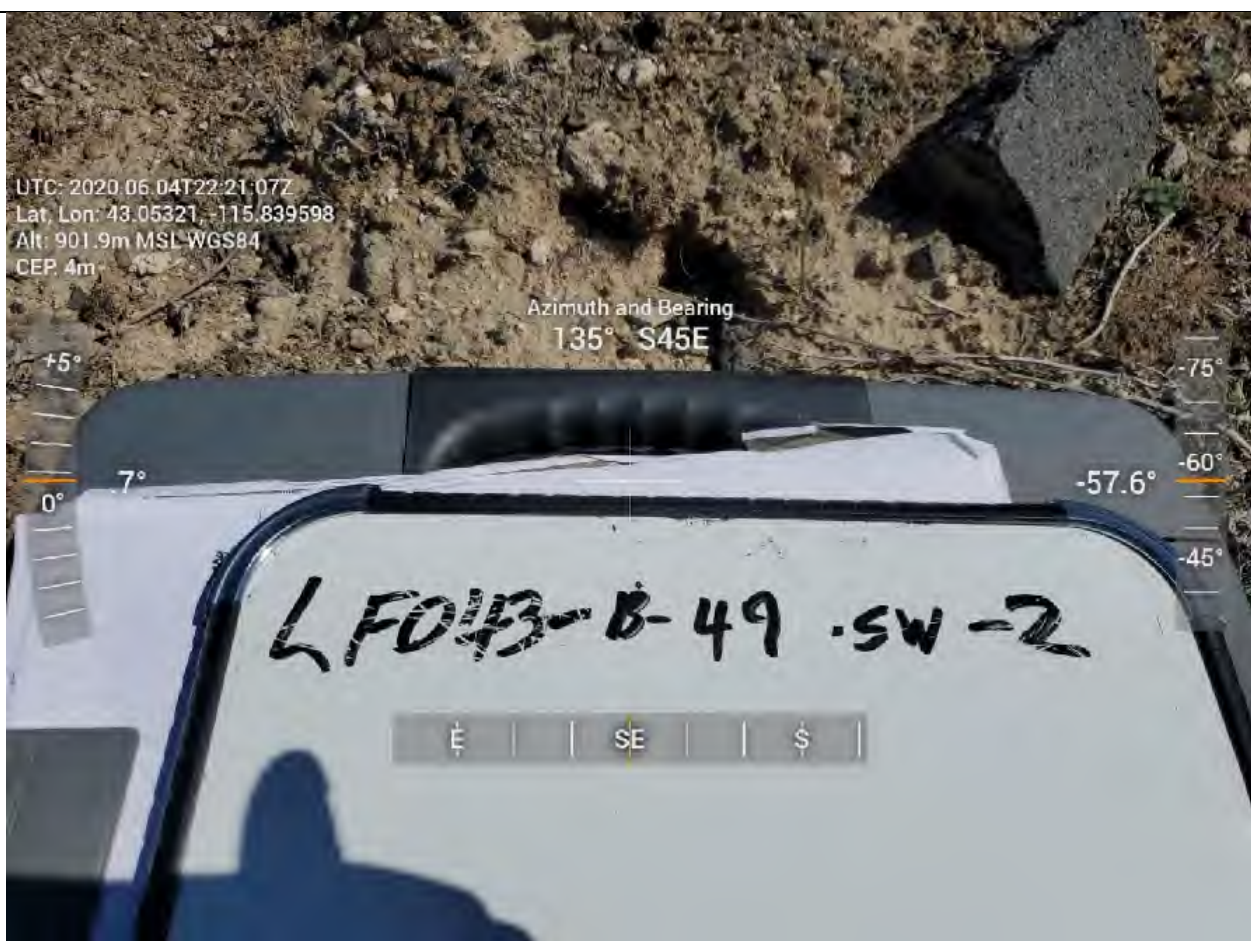
LF043-B-48-SW-2

cement-like material



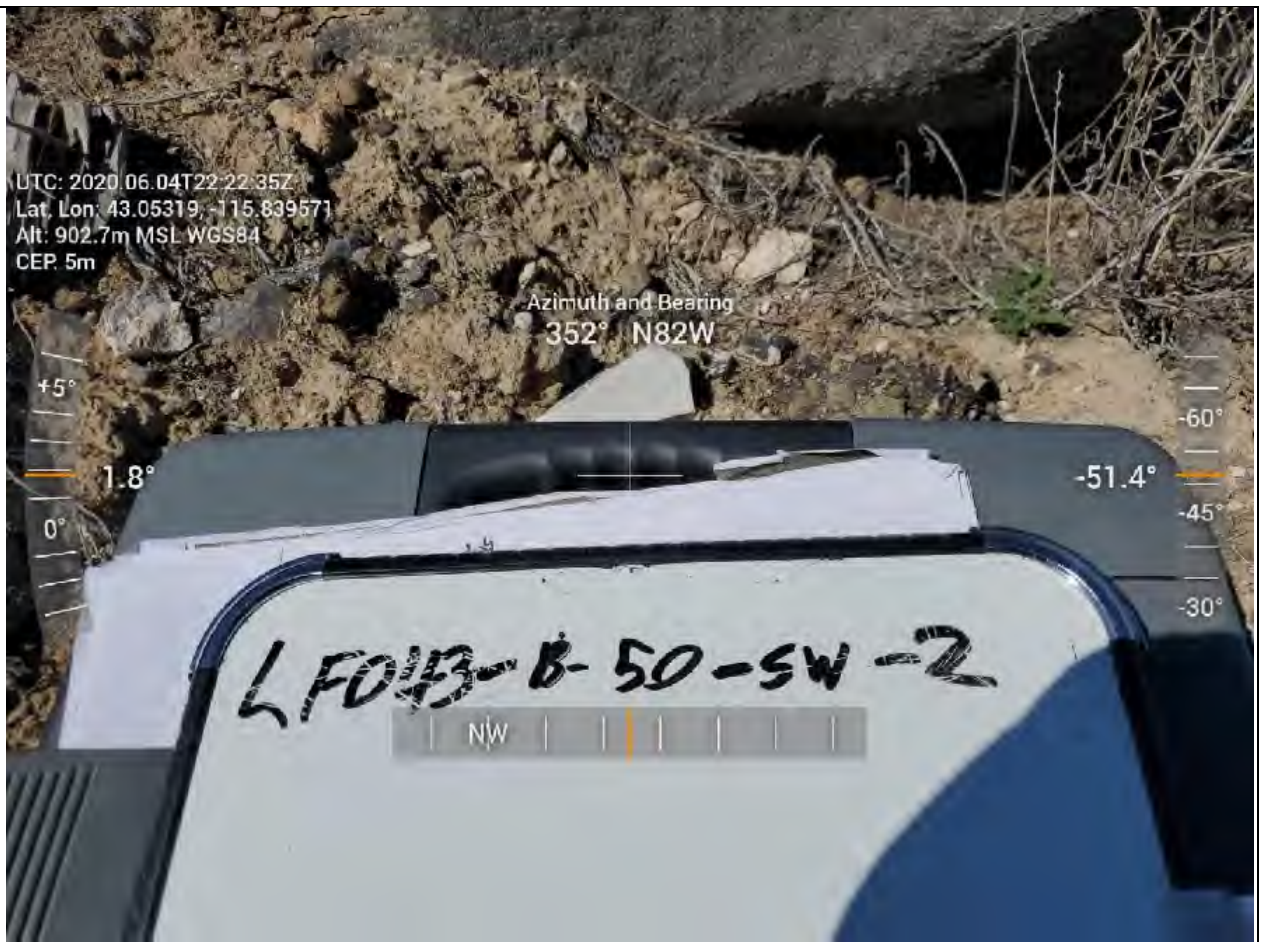
LF043-B-49-SW-2

blue tile



LF043-B-50-SW-2

ceramic-like material





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## Appendix D: Asbestos Bulk Sampling Materials, Coordinates and Analysis Results



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Asbestos Bulk Sample Summary Table

SAMPLE NUMBER	LATITUDE	LONGITUDE	MATERIAL	% Asbestos Content (ND = None Detected)
LF043-B-01-NE-1	43.056053	-115.837764	ceramic-like	ND
LF043-B-02-NE-1	43.056	-115.837718	black rubber-like material	ND
LF043-B-03-NE-1	43.056024	-115.837553	fiberboard	ND
LF043-B-04-NE-1	43.055805	-115.837444	insulation	ND
LF043-B-05-NE-1	43.055977	-115.83731	black rubber/plastic pipe	ND
LF043-B-06-NE-1	43.056819	-115.837556	foam	ND
LF043-B-07-NE-1	43.057803	-115.837141	fiberboard	ND
LF043-B-08-NE-1	43.057857	-115.83709	vinyl tile	ND
LF043-B-09-NE-1	43.057365	-115.836612	plastic pipe	ND
LF043-B-10-NE-1	43.057361	-115.836794	foam	ND
LF043-B-11-NE-1	43.056673	-115.836691	plastic pipe	ND
LF043-B-12-NE-1	43.056427	-115.83668	transite-like material	<b>20 Chrysotile</b>
LF043-B-13-NE-1	43.05602	-115.836573	plaster-like material	ND
LF043-B-14-NE-1	43.055685	-115.836863	asphalt	ND
LF043-B-15-NE-1	43.055662	-115.836994	metal pipe with tar-like coating	ND
LF043-B-16-NE-1	43.055566	-115.836675	black plastic	ND
LF043-B-17-NE-1	43.055683	-115.837487	painted fiberboard	ND
LF043-B-18-NE-1	43.055994	-115.838177	foam with aluminum insulation	ND
LF043-B-19-NE-1	43.05618	-115.838324	mastic on brick	ND
LF043-B-20-NE-1	43.055489	-115.83766	ceramic tile	ND
LF043-B-21-NW-2	43.055427	-115.839019	plastic	ND
LF043-B-22-NW-2	43.056074	-115.839066	roofing shingle	ND
LF043-B-23-NW-2	43.05615	-115.839002	fibrous material with mastic	ND
LF043-B-24-NW-2	43.057321	-115.838701	fibrous plastic	ND
LF043-B-25-NW-2	43.05781	-115.839742	tile-like material	ND
LF043-B-26-NW-2	43.058362	-115.839824	PVC pipe	ND
LF043-B-27-NW-2	43.058534	-115.839696	roofing shingle	ND
LF043-B-28-NW-2	43.058534	-115.839696	transite pipe	<b>20 Chrysotile</b> <b>10 Amosite</b> <b>10 Crocidolite</b>



Asbestos Bulk Sample Summary Table (cont'd)

LF043-B-29-NW-2	43.059209	-115.839923	transite pipe	<b>20 Chrysotile</b> <b>10 Amosite</b> <b>10 Crocidolite</b>
LF043-B-30-NW-2	43.059529	-115.839825	foam	ND
LF043-B-31-NW-2	43.056333	-115.838685	fibrous material	<b>30 Chrysotile</b>
LF043-B-32-NW-2	43.058228	-115.838837	foam insulation with aluminum	ND
LF043-B-33-NW-2	43.059454	-115.838217	plastic tubing	ND
LF043-B-34-NW-2	43.059832	-115.839667	plastic	ND
LF043-B-35-NW-2	43.059755	-115.839734	vinyl tile with mastic	<b>4.9 Chrysotile (mastic)</b>
LF043-B-36-NW-2	43.059803	-115.839773	transite pipe	<b>20 Chrysotile</b> <b>20 Crocidolite</b>
LF043-B-37-NW-2	43.059367	-115.840127	brown plastic tubing	ND
LF043-B-38-NW-2	43.059328	-115.839973	transite	<b>20 Chrysotile</b> <b>20 Crocidolite</b>
LF043-B-39-NW-2	43.059328	-115.837973	transite	<b>20 Chrysotile</b> <b>20 Crocidolite</b>
LF043-B-40-NW-2	43.059052	-115.840143	mesh tape	ND
LF043-B-41-SE-2	43.05512	-115.838542	blue tile	<b>2.4 Chrysotile</b>
LF043-B-42-SE-2	43.055191	-115.838128	transite pipe	<b>20 Chrysotile</b> <b>20 Crocidolite</b>
LF043-B-43-SE-2	43.0547	-115.837481	laminated	ND
LF043-B-44-SE-2	43.054702	-115.8366	pipe wrap	ND
LF043-B-45-SE-2	43.05483	-115.836677	transite and brick	<b>20 Chrysotile (transite)</b> Brick ND
LF043-B-46-SW-2	43.054346	-115.839341	insulation with aluminum	ND
LF043-B-47-SW-2	43.053364	-115.839582	red brick-like material	ND
LF043-B-48-SW-2	43.053295	-115.839863	cement-like material	ND
LF043-B-49-SW-2	43.05321	-115.839598	blue tile	ND
LF043-B-50-SW-2	43.05319	-115.839571	ceramic-like material	ND



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## Appendix E: iATL Asbestos Bulk Sample Analysis Report and Chain of Custody

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## Chain of Custody

–Bulk Asbestos–

### Contact Information

Client Company: The L&R Group  
Office Address: 680 S. Progress Ave.  
City, State, Zip: Meridian, ID 83642  
Fax Number: \_\_\_\_\_  
Email Address: laurie@thelandrgroup.com

Project Number: 190075T  
Project Name: MHAFB LF043  
Primary Contact: Laurie Kuther/L&R  
Office Phone: 208-813-7700  
Cell Phone: \_\_\_\_\_

### PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993  
☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982  
☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985  
☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002  
☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010  
☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009
- ☐ PLM: Point Counting  
☐ PC: via ELAP 198.1  
☐ PC: 400 Points  
☐ PC: 800 Points \*  
☐ PC: 1600 Points \*
- ☐ PLM: Instructions for Multi-Layered Samples  
☐ Analyze and Report All Separable Layers per EPA 600  
☐ Report Composite for Drywall Systems per NESHAP  
☐ Report All Layers and Composite Where Applicable  
☐ Only Analyze and Report Specifically Noted Layer
- ☐ PLM: Analyze Until Positive (Positive Stop)  
☐ AUP: by Homogenous Area as Noted  
☐ AUP: by Material Type as Noted  
☐ PLM: NOB via 198.6  
☐ PLM: Friable via EPA 600 2.3  
☐ If <1% by PLM, to TEM via 198.4 \*  
☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material \*\*\* (Dust, Wipe, Tape)  
☐ Soil or Vermiculite Analysis  
☐ CARB 435

### Special Instructions:

\* Additional charge and turnaround may be required

\*\* Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory

### Turnaround Time

Preliminary Results Requested Date: \_\_\_\_\_ ☐ Verbal ☐ Email ☐ Fax

Specific date / time

☒ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day\* ☐ 12 Hour\*\* ☐ 6 Hour\*\* ☐ RUSH\*\*

\* End of next business day unless otherwise specified. \*\* Matrix Dependent. \*\*\*Please notify the lab before shipping\*\*\*

### Chain of Custody

Relinquished (Name/Organization):	<u>Laurie Kuther/L&amp;R</u>	Date:	<u>6-8-20</u>	Time:	<u>1400</u>
Received (Name / iATL):	<u>[Signature]</u>	Date:	<u>[Signature]</u>	Time:	<u>[Signature]</u>
Sample Login (Name / iATL):	<u>[Signature]</u>	Date:	<u>[Signature]</u>	Time:	<u>[Signature]</u>
Analysis(Name(s) / iATL):	<u>SC 6/12/20</u>	Date:	<u>[Signature]</u>	Time:	<u>[Signature]</u>
QA/QC Review (Name / iATL):	<u>[Signature]</u>	Date:	<u>[Signature]</u>	Time:	<u>[Signature]</u>
Archived / Released:	<u>[Signature]</u>	Date:	<u>[Signature]</u>	Time:	<u>[Signature]</u>
QA/QC InterLAB Use:	<u>[Signature]</u>	Date:	<u>[Signature]</u>	Time:	<u>[Signature]</u>

## Chain of Custody

– Bulk Asbestos –

### Contact Information

**Client Company:** The L&R Group  
**Office Address:** 680 S. Progress Ave.  
**City, State, Zip:** Meridian, ID 83642  
**Fax Number:**  
**Email Address:** laurie@thelandrgroup.com

**Project Number:** 190075T  
**Project Name:** MHA FB LF043  
**Primary Contact:** Laurie Kuther/L&R  
**Office Phone:** 208-813-7700  
**Cell Phone:**

### PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- ☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- ☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- ☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009
- ☐ PLM: Point Counting
  - ☐ PC: via ELAP 198.1
  - ☐ PC: 400 Points
  - ☐ PC: 800 Points \*
  - ☐ PC: 1600 Points \*
- ☐ PLM: Instructions for Multi-Layered Samples
  - ☐ Analyze and Report All Separable Layers per EPA 600
  - ☐ Report Composite for Drywall Systems per NESHAP
  - ☐ Report All Layers and Composite Where Applicable
  - ☐ Only Analyze and Report Specifically Noted Layer
- ☐ PLM: Analyze Until Positive (Positive Stop)
  - ☐ AUP: by Homogenous Area as Noted
  - ☐ AUP: by Material Type as Noted
- ☐ PLM: NOB via 198.6
  - ☐ PLM: Friable via EPA 600 2.3
  - ☐ If <1% by PLM, to TEM via 198.4 \*
  - ☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material<sup>\*\*\*</sup> (Dust, Wipe, Tape)
  - ☐ Soil or Vermiculite Analysis<sup>\*</sup>
  - ☐ CARB 435

### Special Instructions:

\* Additional charge and turnaround may be required

\*\* Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory

### Turnaround Time

Preliminary Results Requested Date: \_\_\_\_\_ ☐ Verbal ☐ Email ☐ Fax

Specific date / time

☒ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day\* ☐ 12 Hour\*\* ☐ 6 Hour\*\* ☐ RUSH\*\*

\* End of next business day unless otherwise specified. \*\* Matrix Dependent. \*\*\*Please notify the lab before shipping\*\*\*

### Chain of Custody

Relinquished (Name/Organization):	Laurie Kuther/L&R	Date:	6-8-20	Time:	1400
Received (Name / iATL):	<i>Ry 6/10/20</i>	Date:	<i>6-10-20</i>	Time:	
Sample Login (Name / iATL):	<i>SLC 116120</i>	Date:		Time:	
Analysis (Name(s) / iATL):		Date:		Time:	
QA/QC Review (Name / iATL):		Date:		Time:	
Archived / Released:		QA/QC InterLAB Use:		Date:	

## Sample Log

—Bulk Asbestos—

Client: **The L&R Group**

Project: **MHAFB LF043**

Sampling Date/Time: ~~6/4/2020-6/5/2020~~ *6/3/2020 - 6/4/2020*

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
LF043-B-01-NE-1	<b>7020393</b>	Tile/grout	
LF043-B-02-NE-1	<b>7020394</b>	Black rubber like material	
LF043-B-03-NE-1	<b>7020395</b>	Fiberboard	
LF043-B-04-NE-1	<b>7020396</b>	Insulation	
LF043-B-05-NE-1	<b>7020397</b>	Black rubber/plastic pipe	
LF043-B-06-NE-1	<b>7020398</b>	Foam	
LF043-B-07-NE-1	<b>7020399</b>	Fiberboard	
LF043-B-08-NE-1	<b>7020400</b>	Tile	
LF043-B-09-NE-1	<b>7020401</b>	Plastic pipe	
LF043-B-10-NE-1	<b>7020402</b>	Foam	
LF043-B-11-NE-1	<b>7020403</b>	Plastic pipe	
LF043-B-12-NE-1	<b>7020404</b>	Unknown Transite-like	
LF043-B-13-NE-1	<b>7020405</b>	Unknown plaster-like	
LF043-B-14-NE-1	<b>7020406</b>	Asphalt	
LF043-B-15-NE-1	<b>7020407</b>	Tar coating on metal pipe	
LF043-B-16-NE-1	<b>7020408</b>	Black plastic	



## Sample Log

–Bulk Asbestos –

Client: **The L&R Group**

Project: **MHAFB LF043**

Sampling Date/Time: 6/4/2020-6/5/2020 6/3/2020 - 6/4/2020

Bulk Asbestos Sample Log			
Client Sample #	IATL #	Location/Description	Notes
LF043-B-17-NE-1	7020409	Painted fiberboard	
LF043-B-18-NE-1	7020410	foam with aluminum insulation	
LF043-B-19-NE-1	7020411	mastic on brick	
LF043-B-20-NE-1	7020412	ceramic tile	
LF043-B-21-NW-2	7020413	plastic	
LF043-B-22-NW-2	7020414	Roofing shingle	
LF043-B-23-NW-2	7020415	fibrous material with mastic	
LF043-B-24-NW-2	7020416	fibrous plastic	
LF043-B-25-NW-2	7020417	unknown, tile like	
LF043-B-26-NW-2	7020418	PVC pipe	
LF043-B-27-NW-2	7020419	Roofing shingle	
LF043-B-28-NW-2	7020420	Transite pipe	
LF043-B-29-NW-2	7020421	Transite pipe	
LF043-B-30-NW-2	7020422	Foam	
LF043-B-31-NW-2	7020423	unknown fibrous material	
LF043-B-32-NW-2	7020424	foam insulation	

## Sample Log

—Bulk Asbestos—

Client: **The L&R Group**

Project: **MHAFB LF043**

Sampling Date/Time: ~~6/4/2020-6/5/2020~~ 6/3/2020 - 6/4/2020

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
LF043-B-33-NW-2	7020425	plastic tubing	
LF043-B-34-NW-2	7020426	plastic	
LF043-B-35-NW-2	7020427	tile with mastic	
LF043-B-36-NW-2	7020428	Transite pipe	
LF043-B-37-NW-2	7020429	Plastic tubing brown	
LF043-B-38-NW-2	7020430	Transite pipe	
LF043-B-39-NW-2	7020431	Transite pipe	
LF043-B-40-NW-2	7020432	Mesh tape	
LF043-B-41-SE-2	7020433	blue tile	
LF043-B-42-SE-2	7020434	Transite pipe	
LF043-B-43-SE-2	7020435	laminate	
LF043-B-44-SE-2	7020436	unknown pipe wrap	
LF043-B-45-SE-2	7020437	Transite and brick	
LF043-B-46-SW-2	7020438	Insulation	
LF043-B-47-SW-2	7020439	red brick	
LF043-B-48-SW-2	7020440	cement like material	

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054  
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

## Sample Log

**—Bulk Asbestos —**

Client: The L&R Group

Project: **MHAFB LF043**

Sampling Date/Time: ~~6/4/2020-6/5/2020~~ 6/3/2020 - 6/4/2020

[illegible]



## **LABORATORY REPORT**

### CERTIFICATE OF ANALYSIS

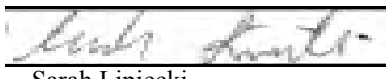
Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

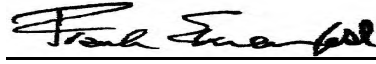
Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHA FB LF043  
Project No.: 190075T

### PLM BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 7020393 <b>Client No.:</b> LE043-B-01-NE-1	<b>Analyst Observation:</b> Off-White Ceramic <b>Client Description:</b> Tile/Grout	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 7020393(L2) <b>Client No.:</b> LE043-B-01-NE-1	<b>Analyst Observation:</b> Grey Grout <b>Client Description:</b> Tile/Grout	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 3 Cellulose	<u>Percent Non-Fibrous Material:</u> 97
<b>Lab No.:</b> 7020394 <b>Client No.:</b> LE043-B-02-NE-1	<b>Analyst Observation:</b> Black Fibrous <b>Client Description:</b> Black Rubber Like Material	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 7 Cellulose	<u>Percent Non-Fibrous Material:</u> 93
<b>Lab No.:</b> 7020395 <b>Client No.:</b> LE043-B-03-NE-1	<b>Analyst Observation:</b> Brown Fiberboard <b>Client Description:</b> Fiberboard	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 80 Cellulose	<u>Percent Non-Fibrous Material:</u> 20
<b>Lab No.:</b> 7020396 <b>Client No.:</b> LE043-B-04-NE-1	<b>Analyst Observation:</b> Silver/Tan Wrap / Insulation <b>Client Description:</b> Insulation	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 2 Cellulose	<u>Percent Non-Fibrous Material:</u> 98
<b>Lab No.:</b> 7020397 <b>Client No.:</b> LE043-B-05-NE-1	<b>Analyst Observation:</b> Black Pipe Material <b>Client Description:</b> Black Rubber/Plastic Pipe	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/12/2020  
Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHA FB LF043  
Project No.: 190075T

PLM BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 7020398	<b>Analyst Observation:</b> Yellow Foam	<b>Location:</b>
<b>Client No.:</b> LE043-B-06-NE-1	<b>Client Description:</b> Foam	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

<b>Lab No.:</b> 7020399	<b>Analyst Observation:</b> Brown Fiberboard	<b>Location:</b>
<b>Client No.:</b> LE043-B-07-NE-1	<b>Client Description:</b> Fiberboard	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	80 Cellulose	20


<b>Lab No.:</b> 7020400	<b>Analyst Observation:</b> White Floor Tile	<b>Location:</b>
<b>Client No.:</b> LE043-B-08-NE-1	<b>Client Description:</b> Tile	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

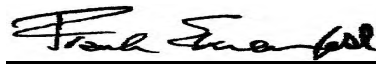
<b>Lab No.:</b> 7020401	<b>Analyst Observation:</b> White Pipe Material	<b>Location:</b>
<b>Client No.:</b> LE043-B-09-NE-1	<b>Client Description:</b> Plastic Pipe	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

<b>Lab No.:</b> 7020402	<b>Analyst Observation:</b> Yellow Foam	<b>Location:</b>
<b>Client No.:</b> LE043-B-10-NE-1	<b>Client Description:</b> Foam	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

<b>Lab No.:</b> 7020403	<b>Analyst Observation:</b> White Pipe Material	<b>Location:</b>
<b>Client No.:</b> LE043-B-11-NE-1	<b>Client Description:</b> Plastic Pipe	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/12/2020  
Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director



### CERTIFICATE OF ANALYSIS

Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHA FB LF043  
Project No.: 190075T

### PLM BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 7020404	<b>Analyst Observation:</b> Grey Cement Product	<b>Location:</b>
<b>Client No.:</b> LE043-B-12-NE-1	<b>Client Description:</b> Unknown Tansite-Like	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<b>20 Chrysotile</b>	8 Cellulose	72

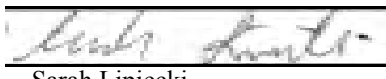
<b>Lab No.:</b> 7020405	<b>Analyst Observation:</b> White Stucco	<b>Location:</b>
<b>Client No.:</b> LE043-B-13-NE-1	<b>Client Description:</b> Unknown Plaster-Like	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<b>None Detected</b>	None Detected	100

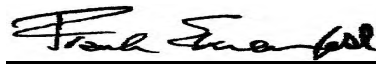
<b>Lab No.:</b> 7020406	<b>Analyst Observation:</b> Black Asphalt	<b>Location:</b>
<b>Client No.:</b> LE043-B-14-NE-1	<b>Client Description:</b> asphalt	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<b>None Detected</b>	5 Cellulose	95

<b>Lab No.:</b> 7020407	<b>Analyst Observation:</b> Black Tar	<b>Location:</b>
<b>Client No.:</b> LE043-B-15-NE-1	<b>Client Description:</b> Tar Coating On Metal Pipe	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<b>None Detected</b>	None Detected	100

<b>Lab No.:</b> 7020408	<b>Analyst Observation:</b> Black Non-Fibrous	<b>Location:</b>
<b>Client No.:</b> LE043-B-16-NE-1	<b>Client Description:</b> Black Plastic	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<b>None Detected</b>	None Detected	100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/12/2020  
Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHA FB LF043  
Project No.: 190075T

PLM BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 7020409	<b>Analyst Observation:</b> White Fiberboard	<b>Location:</b>
<b>Client No.:</b> LE043-B-17-NE-1	<b>Client Description:</b> Painted Fiberboard	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	90 Cellulose	10

<b>Lab No.:</b> 7020410	<b>Analyst Observation:</b> Silver Wrap	<b>Location:</b>
<b>Client No.:</b> LE043-B-18-NE-1	<b>Client Description:</b> Foam With Aluminum Insulation	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	10 Cellulose	90


<b>Lab No.:</b> 7020410(L2)	<b>Analyst Observation:</b> Yellow Foam	<b>Location:</b>
<b>Client No.:</b> LE043-B-18-NE-1	<b>Client Description:</b> Foam With Aluminum Insulation	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

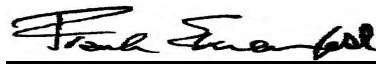
<b>Lab No.:</b> 7020411	<b>Analyst Observation:</b> Black Mastic	<b>Location:</b>
<b>Client No.:</b> LE043-B-19-NE-1	<b>Client Description:</b> Mastic On Brick	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

<b>Lab No.:</b> 7020411(L2)	<b>Analyst Observation:</b> Off-White Mortar	<b>Location:</b>
<b>Client No.:</b> LE043-B-19-NE-1	<b>Client Description:</b> Mastic On Brick	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

<b>Lab No.:</b> 7020412	<b>Analyst Observation:</b> Off-White Ceramic	<b>Location:</b>
<b>Client No.:</b> LE043-B-20-NE-1	<b>Client Description:</b> Ceramic Tile	<b>Facility:</b>
<u>Percent Asbestos:</u>	<u>Percent Non-Asbestos Fibrous Material:</u>	<u>Percent Non-Fibrous Material:</u>
<i>None Detected</i>	None Detected	100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/16/2020  
Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

### CERTIFICATE OF ANALYSIS

Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHA FB LF043  
Project No.: 190075T

### PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 7020413 **Analyst Observation:** Off-White Non-Fibrous  
**Client No.:** LE043-B-21-NW-2 **Client Description:** Plastic

**Location:**  
**Facility:**

Percent Asbestos:  
*None Detected*

Percent Non-Asbestos Fibrous Material:  
None Detected

Percent Non-Fibrous Material:  
100

**Lab No.:** 7020414 **Analyst Observation:** Black Shingle  
**Client No.:** LE043-B-22-NW-2 **Client Description:** Roofing Shingle

**Location:**  
**Facility:**

Percent Asbestos:  
*None Detected*

Percent Non-Asbestos Fibrous Material:  
20 Fibrous Glass

Percent Non-Fibrous Material:  
80

**Lab No.:** 7020415 **Analyst Observation:** Black Fibrous  
**Client No.:** LE043-B-23-NW-2 **Client Description:** Fibrous Material With Mastic

**Location:**  
**Facility:**

Percent Asbestos:  
*None Detected*

Percent Non-Asbestos Fibrous Material:  
80 Cellulose

Percent Non-Fibrous Material:  
20

**Lab No.:** 7020415(L2) **Analyst Observation:** Black Mastic  
**Client No.:** LE043-B-23-NW-2 **Client Description:** Fibrous Material With Mastic

**Location:**  
**Facility:**

Percent Asbestos:  
*None Detected*

Percent Non-Asbestos Fibrous Material:  
None Detected

Percent Non-Fibrous Material:  
100

**Lab No.:** 7020416 **Analyst Observation:** Green FRP Sheeting  
**Client No.:** LE043-B-24-NW-2 **Client Description:** Fibrous Plastic

**Location:**  
**Facility:**


Percent Asbestos:  
*None Detected*

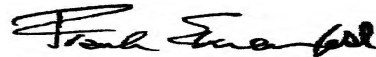
Percent Non-Asbestos Fibrous Material:  
30 Fibrous Glass

Percent Non-Fibrous Material:  
70

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/16/2020

Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director



CERTIFICATE OF ANALYSIS

Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHAFB LF043  
Project No.: 190075T

PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 7020416(L2) **Analyst Observation:** Grey Debris  
**Client No.:** LE043-B-24-NW-2 **Client Description:** Fibrous Plastic

**Location:**  
**Facility:**

Percent Asbestos:  
*None Detected*

Percent Non-Asbestos Fibrous Material:  
20 Cellulose

Percent Non-Fibrous Material:  
80

**Lab No.:** 7020417 **Analyst Observation:** Tan/White Non-Fibrous  
**Client No.:** LE043-B-25-NW-2 **Client Description:** Unknown, Tile Like

**Location:**  
**Facility:**

Percent Asbestos:  
*None Detected*

Percent Non-Asbestos Fibrous Material:  
None Detected

Percent Non-Fibrous Material:  
100

**Lab No.:** 7020417(L2) **Analyst Observation:** Black Non-Fibrous  
**Client No.:** LE043-B-25-NW-2 **Client Description:** Unknown, Tile Like

**Location:**  
**Facility:**

Percent Asbestos:  
*None Detected*

Percent Non-Asbestos Fibrous Material:  
None Detected

Percent Non-Fibrous Material:  
100

**Lab No.:** 7020418 **Analyst Observation:** White Pipe Material  
**Client No.:** LE043-B-26-NW-2 **Client Description:** PVC Pipe

**Location:**  
**Facility:**

Percent Asbestos:  
*None Detected*

Percent Non-Asbestos Fibrous Material:  
None Detected

Percent Non-Fibrous Material:  
100

**Lab No.:** 7020418(L2) **Analyst Observation:** Brown Debris  
**Client No.:** LE043-B-26-NW-2 **Client Description:** PVC Pipe

**Location:**  
**Facility:**


Percent Asbestos:  
*None Detected*

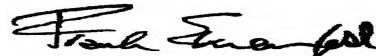
Percent Non-Asbestos Fibrous Material:  
5 Cellulose

Percent Non-Fibrous Material:  
95

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/16/2020

Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

### CERTIFICATE OF ANALYSIS

Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHA FB LF043  
Project No.: 190075T

### PLM BULK SAMPLE ANALYSIS SUMMARY

**Lab No.:** 7020419 **Analyst Observation:** Black Shingle **Location:**  
**Client No.:** LE043-B-27-NW-2 **Client Description:** Roofing Shingle **Facility:**  
  
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:  
*None Detected* 20 Fibrous Glass 80

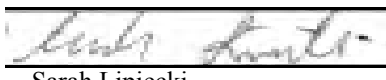
**Lab No.:** 7020420 **Analyst Observation:** Grey Cement Product **Location:**  
**Client No.:** LE043-B-28-NW-2 **Client Description:** Transite Pipe **Facility:**  
  
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:  
*20 Chrysotile* None Detected 60  
*10 Amosite*  
*10 Crocidolite*

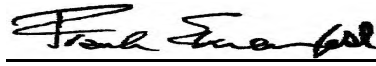
**Lab No.:** 7020421 **Analyst Observation:** Grey Cement Product **Location:**  
**Client No.:** LE043-B-29-NW-2 **Client Description:** Transite Pipe **Facility:**  
  
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:  
*20 Chrysotile* None Detected 60  
*10 Amosite*  
*10 Crocidolite*

**Lab No.:** 7020422 **Analyst Observation:** Blue Foam **Location:**  
**Client No.:** LE043-B-30-NW-2 **Client Description:** Foam **Facility:**  
  
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:  
*None Detected* None Detected 100

**Lab No.:** 7020422(L2) **Analyst Observation:** Tan Debris **Location:**  
**Client No.:** LE043-B-30-NW-2 **Client Description:** Foam **Facility:**  
  
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:  
*None Detected* 5 Cellulose 95

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/16/2020  
Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

### CERTIFICATE OF ANALYSIS

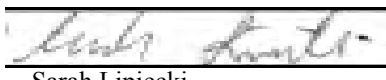
Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

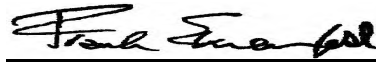
Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHA FB LF043  
Project No.: 190075T

### PLM BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 7020423 <b>Client No.:</b> LE043-B-31-NW-2	<b>Analyst Observation:</b> Grey Fibrous <b>Client Description:</b> Unknown Fibrous Material	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <b>30 Chrysotile</b>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 70
<b>Lab No.:</b> 7020424 <b>Client No.:</b> LE043-B-32-NW-2	<b>Analyst Observation:</b> White/Silver Insulation <b>Client Description:</b> Foam Insulation	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <b>None Detected</b>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 7020425 <b>Client No.:</b> LE043-B-33-NW-2	<b>Analyst Observation:</b> White Pipe Material <b>Client Description:</b> Plastic Tubing	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <b>None Detected</b>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 7020426 <b>Client No.:</b> LE043-B-34-NW-2	<b>Analyst Observation:</b> Blue Non-Fibrous <b>Client Description:</b> Plastic	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <b>None Detected</b>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 7020427 <b>Client No.:</b> LE043-B-35-NW-2	<b>Analyst Observation:</b> White Floor Tile <b>Client Description:</b> Tile With Mastic	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <b>None Detected</b>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/16/2020  
Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director



### CERTIFICATE OF ANALYSIS

Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHAFB LF043  
Project No.: 190075T

### PLM BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 7020427(L2)	<b>Analyst Observation:</b> Black Mastic	<b>Location:</b>
<b>Client No.:</b> LE043-B-35-NW-2	<b>Client Description:</b> Tile With Mastic	<b>Facility:</b>
<u>Percent Asbestos:</u> <b>PC 4.9 Chrysotile</b>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 95.1

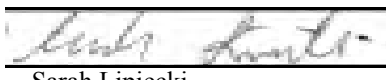
<b>Lab No.:</b> 7020428	<b>Analyst Observation:</b> Grey Cement Product	<b>Location:</b>
<b>Client No.:</b> LE043-B-36-NW-2	<b>Client Description:</b> Transite Pipe	<b>Facility:</b>
<u>Percent Asbestos:</u> <b>20 Chrysotile</b> <b>20 Crocidolite</b>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 60

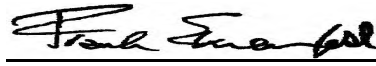
<b>Lab No.:</b> 7020429	<b>Analyst Observation:</b> Brown Pipe Material	<b>Location:</b>
<b>Client No.:</b> LE043-B-37-NW-2	<b>Client Description:</b> Plastic Tubing Brown	<b>Facility:</b>
<u>Percent Asbestos:</u> <b>None Detected</b>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

<b>Lab No.:</b> 7020430	<b>Analyst Observation:</b> Grey Cement Product	<b>Location:</b>
<b>Client No.:</b> LE043-B-38-NW-2	<b>Client Description:</b> Transite Pipe	<b>Facility:</b>
<u>Percent Asbestos:</u> <b>20 Chrysotile</b> <b>20 Crocidolite</b>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 60

<b>Lab No.:</b> 7020431	<b>Analyst Observation:</b> Grey Cement Product	<b>Location:</b>
<b>Client No.:</b> LE043-B-39-NW-2	<b>Client Description:</b> Transite Pipe	<b>Facility:</b>
<u>Percent Asbestos:</u> <b>20 Chrysotile</b> <b>20 Crocidolite</b>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 60

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/16/2020  
Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

### CERTIFICATE OF ANALYSIS

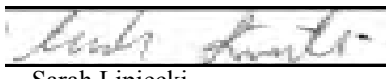
Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

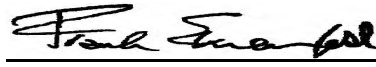
Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHA FB LF043  
Project No.: 190075T

### PLM BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 7020432 <b>Client No.:</b> LE043-B-40-NW-2	<b>Analyst Observation:</b> Grey Tape <b>Client Description:</b> Mesh Tape	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 25 Synthetic	<u>Percent Non-Fibrous Material:</u> 75
<b>Lab No.:</b> 7020432(L2) <b>Client No.:</b> LE043-B-40-NW-2	<b>Analyst Observation:</b> Brown Debris <b>Client Description:</b> Mesh Tape	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 15 Cellulose	<u>Percent Non-Fibrous Material:</u> 85
<b>Lab No.:</b> 7020433 <b>Client No.:</b> LE043-B-41-SE-2	<b>Analyst Observation:</b> Blue Floor Tile <b>Client Description:</b> Blue Tile	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>PC 2.4 Chrysotile</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 97.6
<b>Lab No.:</b> 7020433(L2) <b>Client No.:</b> LE043-B-41-SE-2	<b>Analyst Observation:</b> Brown Debris <b>Client Description:</b> Blue Tile	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose	<u>Percent Non-Fibrous Material:</u> 90
<b>Lab No.:</b> 7020434 <b>Client No.:</b> LE043-B-42-SE-2	<b>Analyst Observation:</b> Grey Cement Product <b>Client Description:</b> Transite Pipe	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>20 Chrysotile</i> <i>20 Crocidolite</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 60
<b>Lab No.:</b> 7020435 <b>Client No.:</b> LE043-B-43-SE-2	<b>Analyst Observation:</b> White Laminate <b>Client Description:</b> Laminate	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 85 Cellulose	<u>Percent Non-Fibrous Material:</u> 15

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/16/2020  
Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

CERTIFICATE OF ANALYSIS

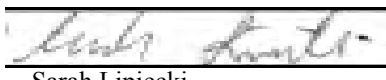
Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

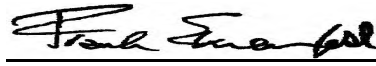
Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHA FB LF043  
Project No.: 190075T

PLM BULK SAMPLE ANALYSIS SUMMARY

<b>Lab No.:</b> 7020436 <b>Client No.:</b> LE043-B-44-SE-2	<b>Analyst Observation:</b> Red/Grey/Brown Wrap <b>Client Description:</b> Unknown Pipe Wrap	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 20 Cellulose	<u>Percent Non-Fibrous Material:</u> 80
<b>Lab No.:</b> 7020437 <b>Client No.:</b> LE043-B-45-SE-2	<b>Analyst Observation:</b> White Cement Product <b>Client Description:</b> Transite And Brick	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>20 Chrysotile</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 80
<b>Lab No.:</b> 7020437(L2) <b>Client No.:</b> LE043-B-45-SE-2	<b>Analyst Observation:</b> White Brick <b>Client Description:</b> Transite And Brick	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 7020438 <b>Client No.:</b> LE043-B-46-SW-2	<b>Analyst Observation:</b> Brown/Silver Insulation <b>Client Description:</b> Insulation	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 15 Cellulose	<u>Percent Non-Fibrous Material:</u> 85
<b>Lab No.:</b> 7020439 <b>Client No.:</b> LE043-B-47-SW-2	<b>Analyst Observation:</b> Red Brick <b>Client Description:</b> Red Brick	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100
<b>Lab No.:</b> 7020439(L2) <b>Client No.:</b> LE043-B-47-SW-2	<b>Analyst Observation:</b> Brown Debris <b>Client Description:</b> Red Brick	<b>Location:</b> <b>Facility:</b>
<u>Percent Asbestos:</u> <i>None Detected</i>	<u>Percent Non-Asbestos Fibrous Material:</u> 10 Cellulose	<u>Percent Non-Fibrous Material:</u> 90

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/16/2020  
Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director



### CERTIFICATE OF ANALYSIS

Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHAFB LF043  
Project No.: 190075T


### PLM BULK SAMPLE ANALYSIS SUMMARY

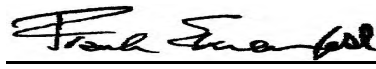
<b>Lab No.:</b> 7020440	<b>Analyst Observation:</b> White Insulation	<b>Location:</b>
<b>Client No.:</b> LE043-B-48-SW-2	<b>Client Description:</b> Cement Like Material	<b>Facility:</b>
<u>Percent Asbestos:</u> None Detected	<u>Percent Non-Asbestos Fibrous Material:</u> 5 Fibrous Glass	<u>Percent Non-Fibrous Material:</u> 95

<b>Lab No.:</b> 7020441	<b>Analyst Observation:</b> Blue Ceramic	<b>Location:</b>
<b>Client No.:</b> LE043-B-49-SW-2	<b>Client Description:</b> Blue Tile	<b>Facility:</b>
<u>Percent Asbestos:</u> None Detected	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

<b>Lab No.:</b> 7020442	<b>Analyst Observation:</b> White Ceramic	<b>Location:</b>
<b>Client No.:</b> LE043-B-50-SW-2	<b>Client Description:</b> Unknown, Ceramic Like	<b>Facility:</b>
<u>Percent Asbestos:</u> None Detected	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/10/2020  
Date Analyzed: 06/16/2020  
Signature:   
Analyst: Sarah Lipiecki

Approved By:   
Frank E. Ehrenfeld, III  
Laboratory Director

## CERTIFICATE OF ANALYSIS

Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHAFB LF043  
Project No.: 190075T

## Appendix to Analytical Report

### Customer Contact:

**Method:** 40 CFR Appendix E to Subpart E of Part 763, interim method for the Determination of Asbestos in Bulk Insulation Samples, and USEPA 600, R93-116 as needed.

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

**iATL Customer Service:** customerservice@iatl.com

**iATL Office Manager:** wchampion@iatl.com

**iATL Account Representative:** Shirley Clark

**Sample Login Notes:** See Batch Sheet Attached

**Sample Matrix:** Bulk Building Materials

**Exceptions Noted:** See Following Pages

### General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at [www.iATL.com](http://www.iATL.com) and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

### Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

### Certifications:

- NIST-NVLAP No. 101165-0
- NYSDOH-ELAP No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. PC Trace represents a <0.25% amount. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

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CERTIFICATE OF ANALYSIS

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Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642  
  
Client: LRG308

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHAFB LF043  
Project No.: 190075T

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)  
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

**Disclaimers / Qualifiers:**

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

- 1) Note: No mastic provided for analysis.
- 2) Note: Insufficient mastic provided for analysis.
- 3) Note: Insufficient material provided for analysis.
- 4) Note: Insufficient sample provided for QC reanalysis.
- 5) Note: Different material than indicated on Sample Log / Description.
- 6) Note: Sample not submitted.
- 7) Note: Attached to asbestos containing material.
- 8) Note: Received wet.
- 9) Note: Possible surface contamination.
- 10) Note: Not building material. 1% threshold may not apply.
- 11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
- 12) Note: Asbestos detected but not quantifiable.
- 13) Note: Multiple identical samples submitted, only one analyzed.
- 14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
- 15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.
- 16) Note: This sample contains >10% vermiculite mineral. See Appendix for Recommendations for Vermiculite Analysis.

**Recommendations for Vermiculite Analysis:**

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gänge, homogeneous exfoliated books of mica, or mixed mineral composites). Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

For New York State customers, NYSDOH requires disclaimers and qualifiers for various vermiculite containing samples that direct analysis via ELAP198.6 and ELAP198.8 for samples that contain >10% vermiculite mineral where ELAP198.6 may be used to evaluate the asbestos content of the material. However, any test result using ELAP198.6 will be reported with the following disclaimer: "ELAP198.6 method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing >10% vermiculite."

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov), United States Geological Survey (USGS) [www.minerals.usgs.gov/minerals/](http://www.minerals.usgs.gov/minerals/), US EPA [www.epa.gov/asbestos](http://www.epa.gov/asbestos). The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional. NYS customers please follow current NYSDOH ELAP requirements per policy on subject of surfacing and vermiculite, May 6, 2016, Testing Requirements for Surfacing Material Containing Vermiculite ([https://www.wadsworth.org/sites/default/files/WebDoc/1198\\_8\\_02\\_2.pdf](https://www.wadsworth.org/sites/default/files/WebDoc/1198_8_02_2.pdf))

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

- 1) **Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116  
**Requirements/Comments:** Minimum of 0.1 g of sample. ~0.25% for most samples.



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CERTIFICATE OF ANALYSIS

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Client: The L & R Group - Technical Services  
680 South Progress Ave 2A  
Meridian ID 83642

Report Date: 6/16/2020  
Report No.: 614712 - PLM  
Project: MHAFB LF043  
Project No.: 190075T

Client: LRG308

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004

**Requirements/Comments:** Minimum 50g\*\* of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004

**Requirements/Comments:** Minimum 50g\*\* of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004

**Requirements/Comments:** Minimum 50g\*\* of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004

**Requirements/Comments:** Minimum 50g\*\* of dry sample. Analysis of "Suspension" only.

\*With advance notice and confirmation by the laboratory.

\*\*Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).



9000 Commerce Parkway Suite B  
Mt. Laurel, New Jersey 08054  
Telephone: 8562319449  
Email: customerservice@iatl.com

### BATCH / SAMPLE MANAGEMENT REPORT

Customer No:	LRG308	Batch Number:	614712
Customer:	The L & R Group - Technical Services 680 South Progress Ave 2A Meridian ID	Project:	MHAFB LF043
Customer Rep:	Shirley Clark	Project Number:	190075T
		TAT:	5 Day
# of Samples:	50 <i>per client</i>	Analysis:	PLM
		Date/Time Recd:	06/10/2020 12:28 PM
		Date/Time Due:	06/17/2020 5:00 PM

Client Notes: N/A

Lab Technician Notes: N/A

Accounting Notes: N/A

Report Processing Notes: N/A

#### Shipping Error:

- \_\_\_\_\_ Samples were not received in a sealed container. Bulk samples not double bagged.
- \_\_\_\_\_ Air Cassettes received open in bag...sample integrity compromised, possible contamination.
- \_\_\_\_\_ Samples received wet.
- \_\_\_\_\_ Samples received covered with dust...possible cross contamination.
- \_\_\_\_\_ Sample containers damaged, contents spilled...possible cross contamination.
- \_\_\_\_\_ Paperwork received in the same bag as samples possible contamination.
- \_\_\_\_\_ No / Incomplete Chain of Custody Received.
- \_\_\_\_\_ No / Incomplete Sample Log Received.
- \_\_\_\_\_ Sample container IDs do not match the client's sample log.
- \_\_\_\_\_ No Turnaround Time indicated.
- \_\_\_\_\_ PCM Re-prep for TEM NIOSH 7402. Cassettes previously opened and portion of filter removed.
- \_\_\_\_\_ Blank (s) not submitted as required by the requested analytical method.
- \_\_\_\_\_ Minimum shipping requirements not attained. See attached Carrier Air Bill.
- \_\_\_\_\_ Other: \_\_\_\_\_

#### Batch Error:

- \_\_\_\_\_ Wrong Client ID Listed
- \_\_\_\_\_ Wrong Client Location Listed
- \_\_\_\_\_ Wrong Project ID Listed
- \_\_\_\_\_ Wrong TurnAround Time Listed
- \_\_\_\_\_ Wrong Due Date Listed
- \_\_\_\_\_ Wrong Date / Time Received Listed
- \_\_\_\_\_ Wrong Analysis Method Listed
- \_\_\_\_\_ Wrong Number of Samples Listed

#### Analysis Acknowledgement

☐ PLM \_\_\_\_\_

#### Login Error:

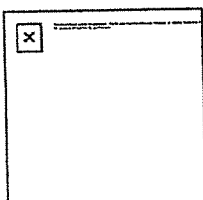
- \_\_\_\_\_ Sample Log Stamped Incorrectly:
- \_\_\_\_\_ Sample Containers Mislabeled
- \_\_\_\_\_ Duplicate / Extra Samples Not Stamped
- \_\_\_\_\_ Lab Technician Bench Sheet Error

## Login

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**From:** Shirley Clark  
**Sent:** Tuesday, June 9, 2020 4:32 PM  
**To:** PLM Requests  
**Subject:** Client Communication - The L & R Group - LRG308

Client Communication	
Staff Member	Shirley
Client Code	LRG308
Client Name	The L & R Group
Contact	Laurie Kuther
Email	amianthus@aol.com
Phone	208-813-6160
Sample Type	PLM
# of Samples	~ 50
Date Samples Arriving	6/10/20
Time Samples Arriving	AM
Method of Arrival	Overnight Delivery
Date/Time Results Requested	6/17/20
Project Name	
Client Request/Expectations	Email to Laurie



Shirley Clark

Senior Accounts Manager  
International Asbestos Testing Laboratories, Inc.  
9000 Commerce Parkway, Suite B  
Mt. Laurel, NJ 08054  
P: 856 231-9449 ext. 1002

[www.iatl.com](http://www.iatl.com)



Re: L and R Group, FYI

Frank Ehrenfeld <frankehrenfeld@iatl.com>

Fri 5/22/2020 10:11 AM

To: Login <Login@iatl.com>; Laura D'Ornellas <ldornellas@iatl.com>; David Hayes <DHayes@iatl.com>; Benjamin Reich <breich@iatl.com>

Cc: Eric Snyder <ericsnyder@iatl.com>; Shirley Clark <shirleyclark@iatl.com>; Whitney Champion <wchampion@iatl.com>; Sarah Lipiecki <SLipiecki@iatl.com>; Mark Stewart <mstewart@iatl.com>; Patrick Carr <PCarr@iatl.com>

Login:

When package arrives from L&R (might have paperwork also from FPM Remediation and/or US Army Corp Engineers with Project [USACE MHA FB LF043, UFP-QAPP]). Please carefully and cleanly stamp paperwork as Rec'd with clear rec'd initials and time. This is part of QAPP project and we will be under strict protocols. Please photograph image of package before opening, after opening with contents, and do not log in until I can see image please.

- (1) Should be (~50) 200-500mL soil/building debris samples for PLM. Please assign to one analyst ONLY for duration of these samples (might be one more submittal in a few weeks. I recommend SL.
- (2) 10-13 PCM/TEM cassettes with high volumes (~3-5000L) and blank(s). Hold until I can see paperwork and samples. When logging in do not hide customer ID labels with iATL labels. Note filter color, condition, and loading before prep. Samples are to be completed by ISO10312 with some extra USEPA-like requirements. ONLY one TEM prepper (BR) and one TEM instrument (TEM I or II) and one analyst (MS or PC).

Let me know arrival and condition please.

Frank Ehrenfeld III

Laboratory Director – Vice President

Chair ASTM D2207

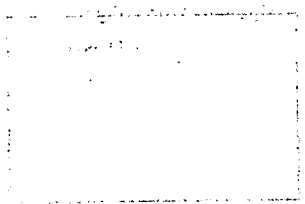
9000 Commerce Parkway,

Suite B

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856 231-9449 P

(b) (6) C  
[www.iatl.com](http://www.iatl.com)



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From: Eric Snyder <ericsnyder@iatl.com>

Sent: Friday, May 22, 2020 9:58 AM

To: Shirley Clark <shirleyclark@iatl.com>

Cc: Frank Ehrenfeld <frankehrenfeld@iatl.com>

Subject: L and R Group, FYI

Package set for FedEx delivery this morning from L&R



**Eric M. Snyder**

President

International Asbestos Testing Laboratories, Inc.

9000 Commerce Parkway, Suite B

Mt. Laurel, NJ 08054

P: 856 231-9449

[www.iatl.com](http://www.iatl.com)



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## Chain of Custody

—Bulk Asbestos—

### Contact Information

Client Company: The L&R Group  
Office Address: 680 S. Progress Ave.  
City, State, Zip: Meridian, ID 83642  
Fax Number: \_\_\_\_\_  
Email Address: laurie@thelandrgroup.com

Project Number: 190075T  
Project Name: MHAFB LF043  
Primary Contact: Laurie Kuther/L&R  
Office Phone: 208-813-7700  
Cell Phone: \_\_\_\_\_

### PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993  
☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982  
☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985  
☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002  
☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010  
☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

- ☐ PLM: Point Counting  
☐ PC: via ELAP 198.1  
☐ PC: 400 Points  
☐ PC: 800 Points \*  
☐ PC: 1600 Points \*

- ☐ PLM: Instructions for Multi-Layered Samples  
☐ Analyze and Report All Separable Layers per EPA 600  
☐ Report Composite for Drywall Systems per NESHAP  
☐ Report All Layers and Composite Where Applicable  
☐ Only Analyze and Report Specifically Noted Layer

- ☐ PLM: Analyze Until Positive (Positive Stop)  
☐ AUP: by Homogenous Area as Noted  
☐ AUP: by Material Type as Noted  
☐ PLM: NOB via 198.6  
☐ PLM: Friable via EPA 600 2.3  
☐ If <1% by PLM, to TEM via 198.4 \*  
☐ If <1% by PLM, Hold for Instructions

- ☐ PLM: Non-Building Material \*\*\* (Dust, Wipe, Tape)  
☐ Soil or Vermiculite Analysis  
☐ CARB 435

### Special Instructions:

\* Additional charge and turnaround may be required

\*\* Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory

### Turnaround Time

Preliminary Results Requested Date: \_\_\_\_\_

☐ Verbal ☐ Email ☐ Fax

Specific date / time

☒ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day\* ☐ 12 Hour\*\* ☐ 6 Hour\*\* ☐ RUSH\*\*

\* End of next business day unless otherwise specified. \*\* Matrix Dependent. \*\*\*Please notify the lab before shipping\*\*\*

### Chain of Custody

Relinquished (Name/Organization): Laurie Kuther/L&R

Date: 6-8-20

Time: 1400

Received (Name / iATL): [Signature]

Date: [Signature]

Time: \_\_\_\_\_

Sample Login (Name / iATL): [Signature]

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Analysis (Name(s) / iATL): SL 6/12/20

Date: \_\_\_\_\_

Time: \_\_\_\_\_

QA/QC Review (Name / iATL): \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Archived / Released: \_\_\_\_\_ QA/QC InterLAB Use: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_



## Sample Log

–Bulk Asbestos–

Client: The L&R Group Project: MHAFB LF043

Sampling Date/Time: 6/4/2020-6/5/2020

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
LF043-B-01-NE-1	7020393	Tile/grout	
LF043-B-02-NE-1	7020394	Black rubber like material	
LF043-B-03-NE-1	7020395	Fiberboard	
LF043-B-04-NE-1	7020396	Insulation	
LF043-B-05-NE-1	7020397	Black rubber/plastic pipe	
LF043-B-06-NE-1	7020398	Foam	
LF043-B-07-NE-1	7020399	Fiberboard	
LF043-B-08-NE-1	7020400	Tile	
LF043-B-09-NE-1	7020401	Plastic pipe	
LF043-B-10-NE-1	7020402	Foam	
LF043-B-11-NE-1	7020403	Plastic pipe	
LF043-B-12-NE-1	7020404	Unknown Transite-like	
LF043-B-13-NE-1	7020405	Unknown plaster-like	
LF043-B-14-NE-1	7020406	Asphalt	
LF043-B-15-NE-1	7020407	Tar coating on metal pipe	
LF043-B-16-NE-1	7020408	Black plastic	

## Sample Log

—Bulk Asbestos—

Client: The L&R Group Project: MHAFB LF043

Sampling Date/Time: 6/4/2020-6/5/2020

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
LF043-B-17-NE-1	7020409	Painted fiberboard	
LF043-B-18-NE-1	7020410	foam with aluminum insulation	
LF043-B-19-NE-1	7020411	mastic on brick	
LF043-B-20-NE-1	7020412	ceramic tile	
LF043-B-21-NW-2	7020413	plastic	
LF043-B-22-NW-2	7020414	Roofing shingle	
LF043-B-23-NW-2	7020415	fibrous material with mastic	
LF043-B-24-NW-2	7020416	fibrous plastic	
LF043-B-25-NW-2	7020417	unknown, tile like	
LF043-B-26-NW-2	7020418	PVC pipe	
LF043-B-27-NW-2	7020419	Roofing shingle	
LF043-B-28-NW-2	7020420	Transite pipe	
LF043-B-29-NW-2	7020421	Transite pipe	
LF043-B-30-NW-2	7020422	Foam	
LF043-B-31-NW-2	7020423	unknown fibrous material	
LF043-B-32-NW-2	7020424	foam insulation	

7-3

## Sample Log

–Bulk Asbestos–

Client: The L&R Group

Project: MHAFB LF043

Sampling Date/Time: 6/4/2020-6/5/2020

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
LF043-B-33-NW-2	7020425	plastic tubing	
LF043-B-34-NW-2	7020426	plastic	
LF043-B-35-NW-2	7020427	tile with mastic	
LF043-B-36-NW-2	7020428	Transite pipe	
LF043-B-37-NW-2	7020429	Plastic tubing brown	
LF043-B-38-NW-2	7020430	Transite pipe	
LF043-B-39-NW-2	7020431	Transite pipe	
LF043-B-40-NW-2	7020432	Mesh tape	
LF043-B-41-SE-2	7020433	blue tile	
LF043-B-42-SE-2	7020434	Transite pipe	
LF043-B-43-SE-2	7020435	laminate	
LF043-B-44-SE-2	7020436	unknown pipe wrap	
LF043-B-45-SE-2	7020437	Transite and brick	
LF043-B-46-SW-2	7020438	Insulation	
LF043-B-47-SW-2	7020439	red brick	
LF043-B-48-SW-2	7020440	cement like material	





9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054  
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

## Sample Log

–Bulk Asbestos–

Client: The L&R Group Project: MHAFB LF043

Sampling Date/Time: 6/4/2020-6/5/2020

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
LF043-B-49-SW-2	7020441	blue tile	
LF043-B-50-SW-2	7020442	unknown, ceramic like	

Batch # 614712 -  
 Analyst: Sarah Lipiecki  
 Date: 6/12/2020  
 Client ID: L&R group  
 Station ID: 11  
 Reviewed By: \_\_\_\_\_

iATL# Client#	Color Material Type	% Asb	Asb	% NAst	NAst	% NF	Notes Optical Properties
7020393 LE043-B-01-N	Off-White Ceramic		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020393(L2)	Grey Grout		Nor ▼	3	Cell ▼	97	0 4 1.550       Yes 0         und
7020394 LE043-B-02-N	Black Fibrous		Nor ▼	7	Cell ▼	93	0 4 1.550       Yes 0         und
7020395 LE043-B-03-N	Brown Fiberboard		Nor ▼	80	Cell ▼	20	0 4 1.550       Yes 0         und
7020396 LE043-B-04-N	Silver/Tan Wrap / Insulation		Nor ▼	2	Cell ▼	98	LNS   0 4 1.550       No 0         und
7020397 LE043-B-05-N	Black Pipe Material		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020398 LE043-B-06-N	Yellow Foam		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020399 LE043-B-07-N	Brown Fiberboard		Nor ▼	80	Cell ▼	20	0 4 1.550       Yes 0         und

7020400	White		Nor ▼	Nor ▼	100	
LE043-B-08-N	Floor Tile					0 4 1.550       Yes 0  
7020401	White		Nor ▼	Nor ▼	100	
LE043-B-09-N	Pipe Material					0 4 1.550       Yes 0  
7020402	Yellow		Nor ▼	Nor ▼	100	
LE043-B-10-N	Foam					0 4 1.550       Yes 0  
7020403	White		Nor ▼	Nor ▼	100	
LE043-B-11-N	Pipe Material					0 4 1.550       Yes 0  
7020404	Grey	20	Chr ▼	8	Cell ▼	72
LE043-B-12-N	Cement Product					0 4 1.550 K N L + 0 1.547 1.555 Yes 0  
7020405	White		Nor ▼	Nor ▼	100	
LE043-B-13-N	Stucco					0 4 1.550       Yes 0  
7020406	Black		Nor ▼	5	Cell ▼	95
LE043-B-14-N	Asphalt					0 4 1.550       Yes 0         und
7020407	Black		Nor ▼	Nor ▼	100	
LE043-B-15-N	Tar					0 4 1.550       Yes 0  
7020408	Black		Nor ▼	Nor ▼	100	
LE043-B-16-N	Non-Fibrous					0 4 1.550       Yes 0  

Analyst Batch Comments:

END OF SAMPLE LOG



Batch # 614712 -  
 Analyst: Sarah Lipiecki  
 Date: 6/16/2020  
 Client ID: I&r group  
 Station ID: 11  
 Reviewed By: \_\_\_\_\_

iATL# Client#	Color Material Type	% Asb	Asb	% NAst	NAsb	% NF	Notes Optical Properties
7020409 LE043-B-17-N	White Fiberboard		Nor ▼	90	Cell ▼	10	0 4 1.550      Yes 0        und
7020410 LE043-B-18-N	Silver Wrap		Nor ▼	10	Cell ▼	90	0 4 1.550      Yes 0        und
7020410(L2)	Yellow Foam		Nor ▼		Nor ▼	100	0 4 1.550      Yes 0  
7020411 LE043-B-19-N	Black Mastic		Nor ▼		Nor ▼	100	0 4 1.550      Yes 0  
7020411(L2)	Off-White Mortar		Nor ▼		Nor ▼	100	0 4 1.550      Yes 0  
7020412 LE043-B-20-N	Off-White Ceramic		Nor ▼		Nor ▼	100	0 4 1.550      Yes 0  
7020413 LE043-B-21-N	Off-White Non-Fibrous		Nor ▼		Nor ▼	100	0 4 1.550      Yes 0  
7020414 LE043-B-22-N	Black Shingle		Nor ▼	20	Fibr ▼	80	0 4 1.550      Yes 0        iso
7020415 LE043-B-23-N	Black Fibrous		Nor ▼	80	Cell ▼	20	0 4 1.550      Yes 0        und

7020415(L2)	Black Mastic	Nor ▼	Nor ▼	100	0 4 1.550      Yes 0  
7020416	Green LE043-B-24-N\FRP Sheeting	Nor ▼	30 Fibr ▼	70	0 4 1.550      Yes 0         iso
7020416(L2)	Grey Debris	Nor ▼	20 Cell ▼	80	0 4 1.550      Yes 0         und
7020417	Tan/White LE043-B-25-N\Non-Fibrous	Nor ▼	Nor ▼	100	0 4 1.550      Yes 0  
7020417(L2)	Black Non-Fibrous	Nor ▼	Nor ▼	100	0 4 1.550      Yes 0  
7020418	White LE043-B-26-N\Pipe Material	Nor ▼	Nor ▼	100	0 4 1.550      Yes 0  
7020418(L2)	Brown Debris	Nor ▼	5 Cell ▼	95	0 4 1.550      Yes 0         und
7020419	Black LE043-B-27-N\Shingle	Nor ▼	20 Fibr ▼	80	0 4 1.550      Yes 0         iso
7020420	Grey LE043-B-28-N\Cement Product	20 10 10	Chrysc Amosit Crocidc	Nor ▼ 60	Second Asb Type Opt Prop =    1.680 s n m + 0 1.681 1.690    0 4 1.550 K N L + 0 1.549 1.557 Yes 0             1.680 s n m + 0 1.681 1.690             1.680 s y m - 0 1.680 1.692  
7020421	Grey LE043-B-29-N\Cement Product	20 10 10	Chrysc Amosit Crocidc	Nor ▼ 60	Second Asb Type Opt Prop =    1.680 s n m + 0 1.687 1.692    0 4 1.550 K N L + 0 1.546 1.556 Yes 0             1.680 s n m + 0 1.687 1.692             1.680 s y m - 0 1.680 1.685  

7020422	Blue		Nor ▼	Nor ▼	100	
LE043-B-30-N\Foam						0 4 1.550      Yes 0  
7020422(L2)	Tan		Nor ▼	5	Cell ▼	95
Debris						0 4 1.550      Yes 0         und
7020423	Grey	30	Chr ▼	Nor ▼	70	
LE043-B-31-N\Fibrous						0 4 1.550 K N L + 0 1.547 1.555 Yes 0  
7020424	White/Silver		Nor ▼	Nor ▼	100	
LE043-B-32-N\Insulation						0 4 1.550      Yes 0  
7020425	White		Nor ▼	Nor ▼	100	
LE043-B-33-N\Pipe Material						0 4 1.550      Yes 0  
7020426	Blue		Nor ▼	Nor ▼	100	
LE043-B-34-N\Non-Fibrous						0 4 1.550      Yes 0  
7020427	White		Nor ▼	Nor ▼	100	
LE043-B-35-N\Floor Tile						0 4 1.550      Yes 0  
7020427(L2)	Black	4.9	Chr ▼	Nor ▼	95.1	
Mastic						4 82 0 4 1.550 K N L + 0 1.548 1.557 Yes 0  
7020428	Grey	20	Chr ysc	Nor ▼	60	Second Asb Type Opt Prop =
LE043-B-36-N\Cement Product		20	Crocide			1.680 s y m - 0 1.681 1.686    0 4 1.550 K N L + 0 1.546 1.556 Yes 0             1.680 s y m - 0 1.681 1.686  
7020429	Brown		Nor ▼	Nor ▼	100	
LE043-B-37-N\Pipe Material						0 4 1.550      Yes 0  



7020430	Grey	20	Chrisc	Nor ▼	60	Second Asb Type Opt Prop =
LE043-B-38-N\Cement Product		20	Crocidc			1.680 s y m - 0 1.680 1.688
						0 4 1.550 K N L + 0 1.547 1.556 Yes 0
						1.680 s y m - 0 1.680 1.688
7020431	Grey	20	Chrisc	Nor ▼	60	Second Asb Type Opt Prop =
LE043-B-39-N\Cement Product		20	Crocidc			1.680 s y m - 0 1.682 1.690
						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						1.680 s y m - 0 1.682 1.690
7020432	Grey		Nor ▼	25	Syn ▼	75
LE043-B-40-N\Tape						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						und
7020432(L2)	Brown		Nor ▼	15	Cell ▼	85
Debris						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						und
7020433	Blue	2.4	Chr ▼		Nor ▼	97.6
LE043-B-41-S\Floor Tile						4 164 0 4 1.550 K N L + 0 1.547 1.558 Yes 0
7020433(L2)	Brown		Nor ▼	10	Cell ▼	90
Debris						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						und
7020434	Grey	20	Chrisc	Nor ▼	60	Second Asb Type Opt Prop =
LE043-B-42-S\Cement Product		20	Crocidc			1.680 s y m - 0 1.682 1.690
						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						1.680 s y m - 0 1.682 1.690
7020435	White		Nor ▼	85	Cell ▼	15
LE043-B-43-S\Laminate						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						und
7020436	Red/Grey/Brown		Nor ▼	20	Cell ▼	80
LE043-B-44-S\Wrap						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						und

7020437	White	20	Chr ▼	Nor ▼	80	0 4 1.550 K N L + 0 1.546 1.556 Yes 0  
LE043-B-45-S	Cement Product					
7020437(L2)	White		Nor ▼	Nor ▼	100	0 4 1.550      Yes 0  
	Brick					
7020438	Brown/Silver		Nor ▼	15	Cell ▼	85
LE043-B-46-S	Insulation					0 4 1.550      Yes 0       und
7020439	Red		Nor ▼		Nor ▼	100
LE043-B-47-S	Brick					0 4 1.550      Yes 0  
7020439(L2)	Brown		Nor ▼	10	Cell ▼	90
	Debris					0 4 1.550      Yes 0       und
7020440	White		Nor ▼	5	Fibr ▼	95
LE043-B-48-S	Insulation					0 4 1.550      Yes 0       Iso
7020441	Blue		Nor ▼		Nor ▼	100
LE043-B-49-S	Ceramic					0 4 1.550      Yes 0  
7020442	White		Nor ▼		Nor ▼	100
LE043-B-50-S	Ceramic					0 4 1.550      Yes 0  

Analyst Batch Comments:

END OF SAMPLE LOG



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208-813-6160  
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## Appendix F: Air Sampling Coordinates



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Perimeter Air Sample Summary Table

SAMPLE	LATITUDE	LONGITUDE	ND = None Detected	RESULTS f/cc
			ASBESTOS STRUCTURES	
LF043-A-01-SE-1	43.051364	-115.838285	ND	<0.000293
LF043-A-02-SE-1	43.052924	-115.836457	ND	<0.000293
LF043-A-03-NE-1	43.055962	-115.836488	ND	<0.000293
LF043-A-04-NE-1	43.058218	-115.83656	ND	<0.000293
LF043-A-05-NE-1	43.059957	-115.836604	ND	<0.000293
LF043-A-06-NW-1	43.060082	-115.838427	ND	<0.000293
LF043-A-07-NW-1	43.06001	-115.839848	ND	<0.000293
LF043-A-08-NW-1	43.058740	-115.840344	ND	<0.000293
LF043-A-09-NW-1	43.056889	-115.840274	ND	<0.000293
LF043-A-10-NW-1	43.055747	-115.839791	ND	<0.000293
LF043-A-11-SW-1	43.054546	-115.840229	ND	<0.000293
LF043-A-12-SW-1	43.052703	-115.840942	ND	<0.000293
LF043-A-13-N-1	43.061502	-115.840926	ND	<0.000293
LF043-A-14-B-1	field blank		ND	NA
LF043-A-15-B-1	field blank		ND	NA
LF043-A-16-SE-2	43.051364	-115.838285	ND	<0.000293
LF043-A-17-SE-2	43.052924	-115.836457	ND	<0.000293
LF043-A-18-NE-2	43.055962	-115.836488	1 Chrysotile	<0.000293
LF043-A-19-NE-2	43.058218	-115.83656	ND	<0.000293
LF043-A-20-NE-2	43.059957	-115.836604	ND	<0.000293
LF043-A-21-NW-2	43.060082	-115.838427	ND	<0.000293
LF043-A-22-NW-2	43.06001	-115.839848	ND	<0.000293
LF043-A-23-NW-2	43.058740	-115.840344	ND	<0.000293
LF043-A-24-NW-2	43.056889	-115.840274	ND	<0.000293
LF043-A-25-NW-2	43.055747	-115.839791	ND	<0.000293
LF043-A-26-SW-2	43.054546	-115.840229	ND	<0.000293
LF043-A-27-SW-2	43.052703	-115.840942	ND	<0.000293
LF043-A-28-N-2	43.061502	-115.840926	ND	<0.000293
LF043-A-29-B-2	field blank		ND	NA

Perimeter Air Sample Summary Table (cont'd)

LF043-A-30-B-2	field blank		ND	NA
LF043-A-31-SE-3	43.051364	-115.838285	ND	<0.000293
LF043-A-32-SE-3	43.052924	-115.836457	ND	<0.000293
LF043-A-33-NE-3	43.055962	-115.836488	ND	<0.000293
LF043-A-34-NE-3	43.058218	-115.83656	ND	<0.000293
LF043-A-35-NE-3	43.059957	-115.836604	ND	<0.000293
LF043-A-36-NW-3	43.060082	-115.838427	ND	<0.000293
LF043-A-37-NW-3	43.06001	-115.839848	ND	<0.000293
LF043-A-38-NW-3	43.058740	-115.840344	ND	<0.000293
LF043-A-39-NW-3	43.056889	-115.840274	ND	<0.000293
LF043-A-40-NW-3	43.055747	-115.839791	ND	<0.000293
LF043-A-41-SW-3	43.054546	-115.840229	ND	<0.000293
LF043-A-42-SW-3	43.052703	-115.840942	ND	<0.000293
LF043-A-43-N-3	43.061502	-115.840926	ND	<0.000293
LF043-A-44-B-3	field blank		ND	NA
LF043-A-45-B-3	field blank		ND	NA





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## Appendix G: iATL Air Sample Analysis Reports and Chain of Custody

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August 28, 2020

**THE L & R GROUP – TECHNICAL SERVICES**  
680 South Progress Avenue 2A  
Meridian, ID 83642  
Tel | 208 813 7700

**ATTENTION:** Laurie Kuther, Project Manager

**REFERENCE:** Mountain Home AFB, LRG Project No. 200050T and 190075T,  
iATL Batches 617132, 617346, 617671, 614712

Laurie:

It was a pleasure to assist L and R in its recent project. Though we continue to be challenged in the laboratory by some of the logistical restrictions (ex. split shifts and physical barriers) introduced by C19, we were happy to be able to contribute to your project.

All data reports and Certificates of Analysis were filed in accordance with the batch ID and turn around specified. The client portal on our iTRACC LIMS always has archived reports in case you need to go back and download any specific test report.

This report details the items outlined in the QAPP for laboratory quality assurance. The attached reanalysis data, copies of logs, calibration data, and related items to satisfy the QAPP are also listed in tabular/checklist form. A Statement of Completion is also listed for attestation of compliance.

Let me know if you or your USACE team has any questions. We look forward to working with you in the future.

Regards,



Frank Ehrenfeld III  
Laboratory Director – Vice President iATL



## Contents:

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The Statement of Compliance relates to the analytical work completed by iATL in June, July, and August 2020 for the Mountain Home AFB, LRG Project No. 200050T and 190075T (iATL Batches 617132, 617346, 617671, 614712). Specifically, all sample receipt and handling requirements, archiving and storage, sample preparation and processing, sample analysis and data reporting, and subsequent Quality Assurance items have been completed in accordance with the specified analytical methods, our iATL SOPs, and the Quality Assurance Project Plan (QAPP) for this project. Related documentation of quality system compliance under our ISO17025:2017 accreditations (ex. AIHA LAP 100188, NIST NVLAP 101165, ELAP 11021) have been previously submitted.



Frank Ehrenfeld III  
Laboratory Director – Vice President iATL

August 28, 2020

Cc:

Tiffany Lowe  
Quality Manager

Whitney Champion  
Operations Manager

Laura D'Ornellas  
Sample Manager

Benjamin Reich  
TEM Sample Preparation

Mark Stewart  
TEM Group Leader, Senior Analyst

Craig A. Liska  
TEM Senior Analyst

Sarah Lipiecki  
PLM Senior Analyst

Linda Price  
PLM Senior Analyst

Will Riffle  
PLM Senior Analyst

QAPP Worksheet #28 – QA Samples Table (Bulk)

QAPP Worksheet #28 – QC Samples Table (Bulk)

<b>Matrix</b>		Bulk			
<b>Analytical Group</b>		PLM			
<b>Analytical Method/SOP Reference1</b>		USEPA 600/R-93/116/PLM .007			
<b>QC Sample</b>	<b>Frequency/Number</b>	<b>Method/SOP QC Acceptance Limits</b>	<b>Corrective Action</b>	<b>Person(s) Responsible for Corrective Action2</b>	<b>Measurement Performance Criteria</b>
Method Blank	Daily use of non-ACM material	<0.25%	Determine the source of the contamination.	Analyst	Same as Method/SOP QC Acceptance Limits
Intra-analyst reanalysis	2% of samples analyzed per day	R-value -1/+1 Exceptions at low level quant	Second analyst performs another reanalysis, Initial analyst revisits/reanalyzes sample.	Analyst QA Manager	Same as Method/SOP QC Acceptance Limits
Inter-analyst Quality assurance	7% of sample analyzed per day	R-value -1/+1 Exceptions at low level quant	Second analyst performs another reanalysis, if need a tertiary analyst follows. Initial analyst revisits/reanalyzes sample.	Analyst QA Manager	Same as Method/SOP QC Acceptance Limits
Inter-laboratory Quality assurance	Quarterly	2-3x standard deviation	Inter Laboratory round robin and/or Proficiency Test participation.	Analyst QA Manager	Same as Method/SOP QC Acceptance Limits
Reference sample	Daily for alignment, qual, and quant.	Must meet established acceptance criteria	Reanalyze is misclassification.	Analyst	Same as Method/SOP QC Acceptance Limits



## Bulk Data Checklist and Narrative:

iATL received 50 bulk building material samples from LRG308 on June 10, 2020. Laura D’Ornellas, iATL Sample Manager inspected and logged in the samples as iATL Batch 614712. These samples were noted as received shipped and received in acceptable condition meeting USEPA 600 R93-116 requirements for sample volume and shipping integrity. The shipment contained an accurate chain of custody listing Project 190075T as Project Name MHAFB LF043. A Sample Log noting each sample’s unique identification and description was in order. iATL unique sample identification numbers were attached to the samples and those numbers stamped on the Log.

Initial Sample Analysis, Sarah Lipiecki, June 12 and June 16, 2020

Secondary QA Sample Analysis, Linda Price, June 16, 2020

Secondary QA Sample Analysis, Will Riffle, August 25, 2020

Table #28 Bulk PLM

Sample	Analyst 1° (SL)	Analyst 2° (LP)	Analyst 2° (CR)	QA Result (+/-)
7020394	ND	NA	ND	+
7020398	ND	NA	ND	+
7020408	ND	NA	ND	+
7020401	ND	NA	ND	+
7020404	20	NA	20	+
7020426	ND	ND	NA	+
7020423	30	12	NA	+
7020413	ND	ND	NA	+
7020431	40	25	NA	+
7020440	ND	ND	NA	+

Results by USEPA 600 R93-116 in CVAE (%) or PC (%)

Samples randomly selected for Intra/InterAnalyst QA ReAnalysis

R-value Acceptance +, Rejection -

## QA Checklist:

<input type="checkbox"/> Analyst Logbooks	Completed/Attached
<input type="checkbox"/> Method Blank	Completed/Attached
<input type="checkbox"/> Intra and Inter Analyst Reanalysis Data (Table #28 Bulk – above)	Completed/Attached
<input type="checkbox"/> Daily Reference Material Analysis	Completed/Attached
<input type="checkbox"/> Daily Microscope Calibration/Alignment	Completed/Attached
<input type="checkbox"/> Refractive Index Oil 1.550, 1.605, 1.680 -Calibrations Logs	Completed/Attached
<input type="checkbox"/> Analyst InterLaboratory and/or PT Proficiency	Completed/Attached

QAPP Worksheet #28 – QC Samples Table (Air)

Matrix		Air			
Analytical Group		Asbestos			
Analytical Method/SOP Reference		ISO 10312:2019/TEM.002			
QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action <sup>2</sup>	Project-Specific Measurement Performance Criteria
Method Blank	5% of submitted samples	1 structure	Determine the source of the contamination.  Clean equipment; prepare and analyze new blank.	Analyst	Same as Method/SOP QC acceptance limits
Field blank	10% of submitted samples	1 structure	Determine the source of the contamination.  Clean equipment; prepare and analyze new blank.	Analyst	Same as Method/SOP QC acceptance limits
Intra-analyst reanalysis	2% of samples analyzed per day	<5structures $\pm$ 1s; 5-20structures $\pm$ 2s; >20structures $\pm$ 3s or 3StDev	Reanalyze the sample. Second analyst performs another reanalysis.	Analyst QA Manager	Same as Method/SOP QC acceptance limits
Inter-analyst Quality assurance	7% of sample analyzed per day	<5structures $\pm$ 1s; 5-20structures $\pm$ 2s; >20structures $\pm$ 3s or 3StDev	Reanalyze the sample. Second analyst performs another reanalysis.	Analyst QA Manager	Same as Method/SOP QC acceptance limits
Inter-laboratory Quality assurance	Quarterly	2x standard deviation	Inter Laboratory Verification – Round Robin or Proficiency Test samples	Analyst QA Manager	Same as Method/SOP QC acceptance limits
Reference sample	EDS Calibrations See Table WS24	Must meet established acceptance criteria	Reanalyze after service call and within acceptable limits	Analyst	Same as Method/SOP QC acceptance limits

## Air Data Checklist and Narrative:

iATL received 45 air monitoring cassettes samples from LRG308 in three separate shipments on July 27, July 30, and August 6, 2020. Laura D'Ornellas, iATL Sample Manager inspected and logged in the samples as iATL Batches 617132, 617346, 617671. These samples were noted as received shipped and received in acceptable condition meeting ISO10312 requirements for shipping integrity. The shipment contained an accurate chain of custody listing Project 200050T as Project Name Mountain Home AFB. A Sample Log noting each sample's unique identification and description was in order (though collected sample volumes were checked and recalculated). iATL unique sample identification numbers were attached to the samples and those numbers stamped on the Log. No field blanks were included. iATL provided Laboratory Blanks for each batch. Required QA reanalysis and instrument calibrations were completed.

Sample Preparation, Ben Reich July 28, August 3, and August 6, 2020

Initial Sample Analysis, Mark Stewart, July 28, 29, 30, August 4, 5, 6, and August

Secondary QA Sample Analysis, Craig Liska, July 28, 29, August 7 and 8, 2020

Table #28 Air TEM

Sample	Analyst 1° (MS)	Analyst 2 ° (MS)	Analyst 2 ° (CL)	Lab Blank <sup>(1)</sup>	QA Result (+/-)
617132 LB1	ND	NA	NA	ND	+
617132 LB2	ND	NA	NA	ND	+
7040575 Rep	ND	ND	NA	NA	+
7040585 Rep	ND	ND	NA	NA	+
7040574 Inter	ND	NA	ND	NA	+
7040584 Inter	ND	NA	ND	NA	+
617346 LB1	ND	NA	NA	ND	+
617346 LB2	ND	NA	NA	ND	+
7042315 Rep	ND	ND	NA	NA	+
7042326 Rep	ND	ND	NA	NA	+
617671 LB1	ND	NA	NA	ND	+
617671 LB2	ND	NA	NA	ND	+
7045849 Rep	ND	ND	NA	NA	+
7045859 Rep	ND	ND	NA	NA	+
7045850 Inter	ND	NA	ND	NA	+
7045860 Inter	ND	NA	ND	NA	+
7042317 Inter	1 chrys fiber at DL 0.00029 s/cc	NA	ND, <0.00029 s/cc	NA	+
7042325 Inter	ND	NA	ND	NA	+

Results by ISO 10312 in s/cc, ND = None Detected, NA = Not Applicable

1, Fields Blanks not submitted, Lab Blanks None Detected at <7.7 s/mm<sup>2</sup>

Samples randomly selected for Intra/InterAnalyst QA ReAnalysis

R-value Acceptance +, Rejection -

## QA Checklist:

- ☐ Analyst Logbooks
- ☐ Method Blank / Laboratory Blanks
- ☐ Intra and Inter Analyst Reanalysis Data (Table #28 Air – above)
- ☐ Routine Calibrations [EDS, SAED, Magnification]
- ☐ Daily Microscope Calibration/Alignment
- ☐ Analyst InterLaboratory and/or PT Proficiency

Completed/Attached  
Completed/Attached  
Completed/Attached  
Completed/Attached  
Completed/Attached  
Completed/Attached



QAPP Worksheet #24 – Analytical Instrument Calibration

QAPP Worksheet #24 – Analytical Instrument Calibration

Instrument <sup>1</sup>	Calibration Item	Calibration Range	Frequency	Acceptance Criteria <sup>2</sup>	Corrective Action <sup>3</sup>	Title/position responsible for CA	Applicable SOP for calibration
TEM I	Magnification Scale	0-40,000x	Annually	10%	Service Call	Quality Manager	TEM.002
TEM I	Working Magnification	20,000x	Quarterly	10%	Service Call	Quality Manager	TEM.002
TEM I	Camera Constant (SAED)	mm-nm	Monthly	10%	Service Call	Quality Manager	TEM.002
TEM I	Beam Dose (SAED)	Seconds	Monthly	30-60	Service Call	Quality Manager	TEM.002
TEM I	Beam Spot Size	250nm	Monthly	15%	Service Call	Quality Manager	TEM.002
EDS I	K Factors	1Kev - 10Kev	Annually	Sliding energy scale	Service Call	Quality Manager	TEM.002
EDS I	Energy Calibration Check	1KeV - 10KeV	Weekly	Al Ka, Cu Ka	Service Call	Quality Manager	TEM.002
EDS I	Resolution	Mn Ka	Monthly	75KeV FWHM	Service Call	Quality Manager	TEM.002
EDS I	Sensitivity	Na Ka	Monthly	3x SD	Service Call	Quality Manager	TEM.002
PLM	Refractive Index Oil	1.550-1.700	Receipt of new batch & quarterly	0.004	Reject Product	Quality Manager	PLM.007
PLM	Alignment	stage objectives optic axis polarizers	Daily check	RI colors and Ext Angle of SRM	Service Call	Analyst	PLM.007
Analytical Balance	Mass	NIST Class S-1 weights Troemner Certification	Daily AutoCal prior to use	0.002 g	Monthly checks with weights. Sartorius Certification.	Analyst/Quality Manager	PLM.007
Muffle Furnace	Temperature	485oC	Monthly	5% range	Service Call	Quality Manager	PLM.007
NIST Traceable Digital Thermometers	Temperature	-1 - 101oC	Daily check	+/- 1oC	Replacement	Quality Manager	PLM.007
Grid Opening Calibrations	Area	0.112-0.118mm	Receipt of batch	0.0130-0.0134mm <sup>2</sup>	Revise calculations	Analyst	TEM
Low Temperature Asher (Plasma)	Gravimetry Loss % over time setting	5-15%	Monthly	5-15%	Adjust / recalibrate	Analyst	TEM

## Instrument/Facilities/Equipment Calibrations

Daily instrument and prep/processing equipment logs are available and attached. Calibrations include units and acceptability ranges. All daily routine alignment, EDS energy scale, etc. noted in attached logs. Since no indirect preparations for bulk samples (ex. ELAP 198.4) or air samples (ex. ISO13794) were needed, the gravimetric calibrations of muffle furnace and analytical balance are not included. The annual k-factor study was also not included, especially since no asbestos minerals were detected.

Table #24 Analytical Instrument Calibrations

Instrument Equipment	Calibration Item	Range Studied	Frequency Check	Corrective Action	QA Result (+/-)
TEM	Mag Scale	0-40kX	Annually	NA	+
TEM	Analysis Mag	20kX	Quarterly	NA	+
TEM	Camera Constant	mm-nm	Monthly	NA	+
TEM	Beam Dose	Seconds	Monthly	NA	+
TEM	Spot Size	250nm	Monthly	NA	+
EDS	Energy Scale	1-10KeV	Weekly	NA	+
EDS	Resolution	Mn Ka	Monthly	NA	+
EDS	Sensitivity	Na Ka	Monthly	NA	+
PLM	RI Oil	See p 5	Product	NA	+
PLM	Alignment	Log	Daily	NA	+
TEM	Grid Opening	Log	Product	NA	+
TEM	LTA/PEA	Log	Monthly	NA	+

Product = calibrated upon receipt of product from vendor

Acceptance +, Rejection -, by 40CFR763 Quality Assurance Calibration Specifications

## QA Checklist:

All relevant log book entries and individual instrument calibrations noted above attached.





## BATCH / SAMPLE MANAGEMENT REPORT

<b>Customer No:</b>	<b>LRG308</b>	<b>Batch Number:</b>	<b>617132</b>
<b>Customer:</b>	The L & R Group - Technical Services 680 South Progress Ave 2A Meridian ID	<b>Project:</b>	Mountain Home AFB
<b>Customer Rep:</b>	Shirley Clark	<b>Project Number:</b>	200050T
		<b>TAT:</b>	5 Day
<b># of Samples:</b>	<b>15</b>	<b>Analysis:</b>	<b>TEM - ISO 10312</b>
		<b>Date/Time Recd:</b>	<b>07/27/2020 10:59 AM</b>
		<b>Date/Time Due:</b>	<b>08/03/2020 5:00 PM</b>

**Client Notes:** N/A

**Lab Technician Notes:** N/A Box received in good condition, completely sealed L

**Accounting Notes:** N/A

**Report Processing Notes:** N/A

### Shipping Error:

- \_\_\_\_\_ Samples were not received in a sealed container. Bulk samples not double bagged.
- \_\_\_\_\_ Air Cassettes received open in bag...sample integrity compromised, possible contamination.
- \_\_\_\_\_ Samples received wet.
- \_\_\_\_\_ Samples received covered with dust...possible cross contamination.
- \_\_\_\_\_ Sample containers damaged, contents spilled...possible cross contamination.
- \_\_\_\_\_ Paperwork received in the same bag as samples possible contamination.
- \_\_\_\_\_ No / Incomplete Chain of Custody Received.
- \_\_\_\_\_ No / Incomplete Sample Log Received.
- \_\_\_\_\_ Sample container IDs do not match the client's sample log.
- \_\_\_\_\_ No Turnaround Time indicated.
- \_\_\_\_\_ PCM Re-prep for TEM NIOSH 7402. Cassettes previously opened and portion of filter removed.
- ✓ \_\_\_\_\_ Blank (s) not submitted as required by the requested analytical method.
- \_\_\_\_\_ Minimum shipping requirements not attained. See attached Carrier Air Bill.
- \_\_\_\_\_ Other: \_\_\_\_\_

### Batch Error:

- \_\_\_\_\_ Wrong Client ID Listed
- \_\_\_\_\_ Wrong Client Location Listed
- \_\_\_\_\_ Wrong Project ID Listed
- \_\_\_\_\_ Wrong TurnAround Time Listed
- \_\_\_\_\_ Wrong Due Date Listed
- \_\_\_\_\_ Wrong Date / Time Received Listed
- \_\_\_\_\_ Wrong Analysis Method Listed
- \_\_\_\_\_ Wrong Number of Samples Listed

### Analysis Acknowledgement

- ☐ TEM Prep \_\_\_\_\_
- ☐ TEM - ISO 10312 \_\_\_\_\_

Lab Blank prepared with samples. Located in Grid Box # 2071 in Grid slots 61 & 63.

### Login Error:

- \_\_\_\_\_ Sample Log Stamped Incorrectly:
- \_\_\_\_\_ Sample Containers Mislabeled
- \_\_\_\_\_ Duplicate / Extra Samples Not Stamped
- \_\_\_\_\_ Lab Technician Bench Sheet Error

## Login

---

**From:** Frank Ehrenfeld  
**Sent:** Tuesday, July 21, 2020 2:16 PM  
**To:** Login  
**Subject:** FW: MHA FB TEM samples

Hold upon arrival for inspection and documentation. Thanks → *Approved by FE 7/27*

**From:** Laurie Kuther <laurie@lrenviro.com>  
**Sent:** Tuesday, July 21, 2020 2:08 PM  
**To:** Shirley Clark <shirleyclark@iatl.com>; Frank Ehrenfeld <frankehrenfeld@iatl.com>  
**Subject:** MHA FB TEM samples

Hi there! They have started the sample collection and will be picking the samples up tomorrow. I am thinking that you should see the samples either Thursday or Friday, depending on how late it is when they pick the samples up. This will be the case for the next two weeks as well.

Thanks!



**LAURIE KUTHER**  
*Laboratory Manager  
Environmental Professional*

**Office Address:**  
680 South Progress Avenue, Suite 2A  
Meridian, Idaho 83642

**Office:** 208-813-7700  
**Email:** laurie@lrenviro.com



### CONFIDENTIALITY NOTICE:

This email is intended only for the personal and confidential use of the individual(s) named as recipient(s) and is covered by the Electronic Communications Privacy Act, 18 U.S.C.2510-2521. It may contain information that is confidential and protected from disclosure under applicable law. If you have received this email in error, please notify the sender and delete this message from your computer. Do not forward, copy or disclose its contents.

## Chain of Custody

—Airborne Asbestos—

### Contact Information

Client Company: The L&R Group  
Office Address: 680 S. Progress Ave.  
City, State, Zip: Meridan, ID, 83642  
Fax Number: \_\_\_\_\_  
Email Address: laurie@lrenviro.com

Project Number: 200050T  
Project Name: Mountain Home AFB  
Primary Contact: Laurie Kuther  
Office Phone: 208.813.7700  
Cell Phone: \_\_\_\_\_

### Matrix/Method:

- ☐ PCM: NIOSH 7400  
☐ PCM: OSHA ID-160  
☐ TEM: NIOSH 7402  
☐ TEM: AHERA 40 CFR 763  
☒ TEM: ISO 10312  
☐ TEM: ISO 13794  
☐ Other \_\_\_\_\_

### Special Instructions:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Turnaround Time

Preliminary Results Requested Date: \_\_\_\_\_  
Specific date / time  
☒ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day\* ☐ 12 Hour\*\* ☐ 6 Hour\*\* ☐ RUSH\*\*

\* End of next business day unless otherwise specified. \*\* Matrix Dependent. \*\*\*Please notify the lab before shipping\*\*\*

### Chain of Custody

Relinquished (Name/Organization):	<u>L&amp;R Group</u>	Date:	<u>7/22/2020</u>	Time:	<u>15:30</u>
Received (Name / iATL):	<u>Mr 7/27/20 10:15 AM</u>	Date:	_____	Time:	_____
Sample Login (Name / iATL):	<u>7/27/20 11 AM</u>	Date:	_____	Time:	_____
Analysis(Name(s) / iATL):	<u>MS 7/28/20 10:30 AM</u>	Date:	_____	Time:	_____
QA/QC Review (Name / iATL):	_____	Date:	_____	Time:	_____
Archived / Released:	_____	QA/QC InterLAB Use:	_____	Date:	_____

MR 7/28/20 6:21 AM

ALL - by



## Sample Log

—Airborne Asbestos—

Client: **L&R Group**

Project: **200050T**

Sampling Date/Time: **7/21/2020**

Client Sample #	iATL #	Location/ Description	Flow Rate	Start End	Sampling time (min)	Area (ft2) Volume (L)	Results ( )
01	7040574	LR-043	7LPM	1250-0035	687min	4800L	
02	7040575	LR-043	7LPM	1257-0042	687min	4800L	
03	7040576	LR-043	7LPM	1301-0046	687min	4800L	
04	7040577	LR-043	7LPM	1306-0051	687min	4800L	
05	7040578	LR-043	7LPM	1309-0054	687min	4800L	
06	7040579	LR-043	7LPM	1313-0058	687min	4800L	
07	7040580	LR-043	7LPM	1339-0124	687min	4800L	
08	7040581	LR-043	7LPM	1346-0131	687min	4800L	
09	7040582	LR-043	7LPM	1353-0138	687min	4800L	
10	7040583	LR-043	7LPM	1402-0147	687min	4800L	
11	7040584	LR-043	7LPM	1409-0154	687min	4800L	
12	7040585	LR-043	7LPM	1418-0203	687min	4800L	
13	7040586	LR-043	7LPM	1335-0120	687min	4800L	
14	7040587	LR-043	7LPM	1341-0126	687min	4800L	
15	7040588	LR-043	7LPM	1341-0134	687min	4800L	

\* = Insufficient Sample Provided to Perform QC Reanalysis (<200mg)

\*\* = Insufficient Sample Provided to Analyze (<50mg) \*\*\* = Matrix / Substrate Interference Possible

FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.

These preliminary results are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.

# Sample Log

—Airborne Asbestos—

Client: **L&R Group**

Project: **200050T**

Sampling Date/Time: **7/21/2020**

Client Sample #	iATL #	Location/ Description	Flow Rate	Start End	Sampling time (min)	Area (ft2) Volume (L)	Results ( )
01	7040574	LR-043	7LPM	1250-0035	687 <sup>70.5</sup> min	4800L	4935
02	7040575	LR-043	7LPM	1257-0042	687 <sup>70.5</sup> min	4800L	4935
03	7040576	LR-043	7LPM	1301-0046	687 <sup>70.5</sup> min	4800L	4935
04	7040577	LR-043	7LPM	1306-0051	687 <sup>70.5</sup> min	4800L	4935
05	7040578	LR-043	7LPM	1309-0054	687 <sup>70.5</sup> min	4800L	4935
06	7040579	LR-043	7LPM	1313-0058	687 <sup>70.5</sup> min	4800L	4935
07	7040580	LR-043	7LPM	1339-0124	687 <sup>70.5</sup> min	4800L	4935
08	7040581	LR-043	7LPM	1346-0131	687 <sup>70.5</sup> min	4800L	4935
09	7040582	LR-043	7LPM	1353-0138	687 <sup>70.5</sup> min	4800L	4935
10	7040583	LR-043	7LPM	1402-0147	687 <sup>70.5</sup> min	4800L	4935
11	7040584	LR-043	7LPM	1409-0154	687 <sup>70.5</sup> min	4800L	4935
12	7040585	LR-043	7LPM	1418-0203	687 <sup>70.5</sup> min	4800L	4935
13	7040586	LR-043	7LPM	1335-0120	687 <sup>70.5</sup> min	4800L	4935
14	7040587	LR-043	7LPM	1341-0126	687 <sup>70.5</sup> min	4800L	4935
15	7040588	LR-043	7LPM	1341-0134	687 <sup>71.3</sup> min	4800L	4991

\* = Insufficient Sample Provided to Perform QC Reanalysis (<200mg)

\*\* = Insufficient Sample Provided to Analyze (<50mg) \*\*\* = Matrix / Substrate Interference Possible

FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.

These preliminary results are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

07/30/20

IATL Sample #: LB

**Client Sample #:** **LB**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2071

**OC Submittal:**

Grid Archive ID #: **G1**

† AEM ID: III

JEOL, JEM-1230, EM18440033

EVEX

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a	
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a	
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification: 20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage: 100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	0	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	10	Minimum Detection Limit:	NA	s/cc
Total Area Analyzed:	0.130 mm <sup>2</sup>	Analytical Sensitivity:	7.69	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 $\mu\text{m}$ :	NSD				
>5.0 $\mu\text{m}$ :	NSD				
Asbestos:	< 7.7	s/mm <sup>2</sup>		Non-Asbestos:	< 7.7 s/mm <sup>2</sup>
Asbestos:	NA	s/cc		Non-Asbestos:	NA s/cc

☐ Place "x" in box if analysis "on-hold"☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

## Analysis Data

\* (pcf) = possible cleavage fragment

[illegible]

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	Good
-------------	------

Carbon Film	Good
-------------	------

Loading	<u>&lt;1%</u>
---------	---------------

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_





## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Project: Mountain Home AFB - Replicates  
Project No.: 200050T - Batch # 617132

Client No.: LRG308

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field:	L&R Group	Date:	7/22/20	Time:	
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/27/20	Time:	10:15 AM
Samples Prepped:	B. Reich	Date:	7/28/20	Time:	6:21 AM
Samples Analyzed:	M. Stewart	Date:	7/30/20	Time:	11:00 AM
Preliminary Results Faxed:		Date:		Time:	
Preliminary Results E-Mail:		Date:		Time:	

### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
2-Rep	7040575R	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
12-Rep	7040585R	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2072

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

Client Name: The L & R Group - Technical Services

Client Project #:

Analysis Date:

07/30/20

IATL Sample #: 7040575R

Client Sample #: 2-Rep

Sample Type: **ISO 10312, Ambient Air -- Determination of Asbestos Fibres**

IATL Grid Box #: 2072

QC Submittal:

Grid Archive ID #: Q2Q4

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	<u>25</u>	Secondary Filter Dia. (mm²):	<u>n/a</u>
Primary EFA (mm²):	<u>385</u>	Secondary EFA (mm²):	<u>n/a</u>
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>
		Magnification:	20,000X
		Accelerating Voltage:	100KeV

Grid Opening:	<u>0.115</u> mm	Volume of Air Sampled:	<u>4809</u> Liters
Grid opening Area:	<u>0.0130</u> mm²		
Grid Openings Read / (Required):	<u>21</u>	Minimum Detection Limit:	<u>0.0003</u> s/cc
Total Area Analyzed:	<u>0.273</u> mm²	Analytical Sensitivity:	<u>3.66</u> s/mm²

Primary / Total Asbestos Structures:	<u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures:	<u>5</u>
0.5 - 5.0 µm:	<u>NSD</u>		
>5.0µm:	<u>NSD</u>		
Asbestos:	<u>&lt; 3.7</u> s/mm²	Non-Asbestos:	<u>18.3</u> s/mm²
Asbestos:	<u>&lt; 0.00029</u> s/cc	Non-Asbestos:	<u>0.00147</u> s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
Q2 D10			NSD						
D9			MF	1.5	0.15			SiAl - Other Fiber	
D8			NSD						
D7			NSD						
D6			B	3.5	0.7			SiAl - Other Fiber	
D5			NSD						
D4			F	3.5	0.6			SiAl - Other Fiber	
D3			NSD						
D2			NSD						
D1			MF	1.5	0.2			SiAl - Other Fiber	
E1			NSD						
Q4 E1			NSD						
E2			NSD						
E3			NSD						
E4			NSD						
E5			NSD						
E6			NSD						
E7			F	4	0.4			SiAl - Other Fiber	
E8			NSD						
E9			NSD						
E10			NSD						
	0	0						5	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002 ,004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

<b>Prep Quality:</b>	
Dissolution	<u>Good</u>
Carbon Film	<u>Good</u>
Loading	<u>7%</u>

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_



EVEX

\* (pcf) = possible cleavage fragment

## Analysis Data

<b>Prep Quality:</b>	
Dissolution	Good
Carbon Film	Good
Loading	2%

Reviewed By:

## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID  
Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 200050T - Batch # 617132

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field:	L&R Group	Date:	7/22/20	Time:	
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/27/20	Time:	10:15 AM
Samples Prepped:	B. Reich	Date:	7/28/20	Time:	6:21 AM
Samples Analyzed:	M. Stewart	Date:	7/28/20	Time:	10:30 AM
Preliminary Results Faxed:		Date:		Time:	
Preliminary Results E-Mail:		Date:		Time:	

### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
01	7040574	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
02	7040575	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
03	7040576	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
04	7040577	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
05	7040578	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
06	7040579	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

**NSD** = No Structures Detected **1** - Primary Structures: Fibers, bundles, clusters and matrices **2** - Total Structures: Includes component fibers of primary clusters and matrices **3** - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. **4** - Total Asbestos Structures in relation to area analyzed. **5** - Total Asbestos Structures of all sizes as a function of the volume of air sampled. **6** - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. **7** - For all structures >5µm in length.

Grid Box #: 2071

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

## FINAL RESULTS

### Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Project: Mountain Home AFB  
Project No.: 200050T - Batch # 617132

Client No.: LRG308

Turn-Around Time: 5 Days

#### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

#### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

#### Chain of Custody:

Samples Taken in Field:	L&R Group	Date:	7/22/20	Time:	
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/27/20	Time:	10:15 AM
Samples Prepped:	B. Reich	Date:	7/28/20	Time:	6:21 AM
Samples Analyzed:	M. Stewart	Date:	7/29/20	Time:	7:20 AM
Preliminary Results Faxed:		Date:		Time:	
Preliminary Results E-Mail:		Date:		Time:	

#### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
07	7040580	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
08	7040581	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
09	7040582	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
10	7040583	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
11	7040584	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
12	7040585	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
13	7040586	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

**NSD** = No Structures Detected **1** - Primary Structures: Fibers, bundles, clusters and matrices **2** - Total Structures: Includes component fibers of primary clusters and matrices **3** - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. **4** - Total Asbestos Structures in relation to area analyzed. **5** - Total Asbestos Structures of all sizes as a function of the volume of air sampled. **6** - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. **7** - For all structures >5µm in length.

Grid Box #: 2071

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.



## FINAL RESULTS

### Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID  
Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 200050T - Batch # 617132

Turn-Around Time: 5 Days

#### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

#### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

#### Chain of Custody:

Samples Taken in Field:	L&R Group	Date:	7/22/20	Time:	
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/27/20	Time:	10:15 AM
Samples Prepped:	B. Reich	Date:	7/28/20	Time:	6:21 AM
Samples Analyzed:	M. Stewart	Date:	7/30/20	Time:	7:40 AM
Preliminary Results Faxed:		Date:		Time:	
Preliminary Results E-Mail:		Date:		Time:	

#### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
14	7040587	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
15	7040588	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
LB	LB	0.0	None Detected	0	None Detected	< 7.7	NA
LB	LB	0.0	None Detected	0	None Detected	< 7.7	NA

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2071

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

2 of 2

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

07/28/20

**IATL Sample #:** **7040575**

**Client Sample #:** 02

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2071**QC Submittal:**Grid Archive ID #: **A5A7**† **AEM ID:** III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	<b>25</b>	Secondary Filter Dia. (mm²):	<b>n/a</b>		
Primary EFA (mm²):	<b>385</b>	Secondary EFA (mm²):	<b>n/a</b>		
Primary Filter Type:	<b>MCE</b>	Secondary Filter Type:	<b>n/a</b>	Magnification:	20,000X
Primary Filter Pore Size (µm):	<b>0.8</b>	Secondary Filter Pore Size (µm):	<b>n/a</b>	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809 Liters
Grid opening Area:	0.0130 mm <sup>2</sup>		
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003 s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66 s/mm <sup>2</sup>

Primary / Total <b>Asbestos</b> Structures:	NSD	/	NSD	Non-Asbestos Structures:	1
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

---

Fraction of collection filter ashed:	0.25
--------------------------------------	------

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	$\dagger$ Chrysotile	** Amphibole	*** Non-Asbestos	$\mu\text{graph/EDS ID}$ or Comments*
A5 F6			NSD						
F7			NSD						
F8			NSD						
F9			NSD						
F10			NSD						
D10			NSD						
D9			F	2	0.4			CaS - Gypsum	
D8			NSD						
D7			NSD						
D6			NSD						
D5			NSD						
A7 E5			NSD						
E4			NSD						
E3			NSD						
E2			NSD						
E1			NSD						
C1			NSD						
C2			NSD						
C3			NSD						
C4			NSD						
C5			NSD						
	0	0						1	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002 ,004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>†</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	Good
-------------	------

Carbon Film	Good
-------------	------

Loading	8%
---------	----

Comments: \_\_\_\_\_

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

4 of 7



5 of 7

EVEX

\* (pcf) = possible cleavage fragment

## Analysis Data

<b>Prep Quality:</b>	
Dissolution	Good
Carbon Film	Good
Loading	1%

Reviewed By:



Client Name: The L & R Group - Technical Services

Client Project #:

Analysis Date:

07/29/20

IATL Sample #: 7040580

Client Sample #: 07

Sample Type: **ISO 10312, Ambient Air -- Determination of Asbestos Fibres**

IATL Grid Box #: 2071

QC Submittal:

Grid Archive ID #: C5C7

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm <sup>2</sup> ):	<u>25</u>	Secondary Filter Dia. (mm <sup>2</sup> ):	<u>n/a</u>
Primary EFA (mm <sup>2</sup> ):	<u>385</u>	Secondary EFA (mm <sup>2</sup> ):	<u>n/a</u>
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>
		Magnification:	20,000X
		Accelerating Voltage:	100KeV

Grid Opening:	<u>0.115</u> mm	Volume of Air Sampled:	<u>4809</u> Liters
Grid opening Area:	<u>0.0130</u> mm <sup>2</sup>		
Grid Openings Read / (Required):	<u>21</u>	Minimum Detection Limit:	<u>0.0003</u> s/cc
Total Area Analyzed:	<u>0.273</u> mm <sup>2</sup>	Analytical Sensitivity:	<u>3.66</u> s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	<u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures:	<u>2</u>
0.5 - 5.0 µm:	<u>NSD</u>		
>5.0µm:	<u>NSD</u>		
Asbestos:	<u>&lt; 3.7</u> s/mm <sup>2</sup>	Non-Asbestos:	<u>7.3</u> s/mm <sup>2</sup>
Asbestos:	<u>&lt; 0.00029</u> s/cc	Non-Asbestos:	<u>0.00059</u> s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
C5	G5		NSD						
	G6		NSD						
	G7		NSD						
	G8		NSD						
	G9		NSD						
	G10		NSD						
	E10		NSD						
	E9		NSD						
	E8		NSD						
	E7		NSD						
	E6		NSD						
C7	G5		NSD						
	G4		NSD						
	G3		NSD						
	G2		NSD						
	G1		NSD						
	I1		NSD						
	I2		NSD						
	I3		NSD						
	I4		NSD						
	I5		F	4.5	0.15			CaS - Gypsum	
			F	1.2	0.2			SiAl - Other Fiber	
	0	0						2	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002 ,004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

#### Prep Quality:

Dissolution	<u>Good</u>
Carbon Film	<u>Good</u>
Loading	<u>8%</u>

Comments: \_\_\_\_\_

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_



2 of 7

3 of 7

4 of 7

5 of 7



6 of 7

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

07/29/20

**IATL Sample #:** **7040586**

**Client Sample #:** 13

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2071**QC Submittal:**Grid Archive ID #: **E9F2**† **AEM ID:** III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	<b>25</b>	Secondary Filter Dia. (mm²):	<b>n/a</b>		
Primary EFA (mm²):	<b>385</b>	Secondary EFA (mm²):	<b>n/a</b>		
Primary Filter Type:	<b>MCE</b>	Secondary Filter Type:	<b>n/a</b>	Magnification:	20,000X
Primary Filter Pore Size (µm):	<b>0.8</b>	Secondary Filter Pore Size (µm):	<b>n/a</b>	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm^2

Primary / Total <b>Asbestos</b> Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	< 3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	< 0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

Place "x" in box if overloaded (>25%)

---

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length μm	Width μm	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
E9	F6			NSD					
	F5			NSD					
	F4			NSD					
	F3			NSD					
	F2			NSD					
	F1			NSD					
	H1			NSD					
	H2			NSD					
	H3			NSD					
	H4			NSD					
	H5			NSD					
F2	C5			NSD					
	C4			NSD					
	C3			NSD					
	C2			NSD					
	C1			NSD					
	A1			NSD					
	A2			NSD					
	A3			NSD					
	A4			NSD					
	A5			NSD					
	0	0						0	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002 ,004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>†</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	Good
-------------	------

Carbon Film	Good
-------------	------

Loading	7%
---------	----

Comments: \_\_\_\_\_

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

1 of 4

2 of 4



Client Name: The L & R Group - Technical Services

Analysis Date:

07/28/20

IATL Sample #: 7040574

Client Project #:

Client Sample #: 01

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2071

QC Submittal:

Grid Archive ID #: A1A3

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a	Magnification:	20,000X
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a	Accelerating Voltage:	100KeV
Primary Filter Type:	MCE	Secondary Filter Type:	n/a		
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a		

Grid Opening:	0.115 mm	Volume of Air Sampled:	4935	Liters
Grid opening Area:	0.0130 mm²			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm²	Analytical Sensitivity:	3.66	s/mm²

Primary / Total Asbestos Structures:	NSD / NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD		
>5.0µm:	NSD		
Asbestos:	< 3.7 s/mm²	Non-Asbestos:	< 7.3 s/mm²
Asbestos:	< 0.00029 s/cc	Non-Asbestos:	< 0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
A1 B5			NSD						
B6			NSD						
B7			NSD						
* B8			P	1.5	0.3			SiAl	
B9			NSD						
B10			P	2.2	0.2			SiAl	
D10			NSD						
D9			NSD						
D8			NSD						
D7			NSD						
D6			NSD						
A3 E5			NSD						
E4			NSD						
E3			NSD						
E2			NSD						
X E1			P	4.0	1.4			SiAl	
G1			PFD	1.0	0.06			SiAl	
G2			<del>P</del> P	1.0	0.06			SiAl	
G3			NSD						
G4			NSD						
G5			NSD						
	0	0						0	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber

Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS

† AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

Prep Quality:

Dissolution Good

Carbon Film Good

Loading 8%

Comments:

\* B8: P (3.0x0.5) SiAl  
X E1: P (1.0x0.6) SiAl

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

QC: CR16 LISA 7/30/20

Client Name: The L & R Group - Technical Services

Client Project #:

Analysis Date:

07/29/20

IATL Sample #: 7040584

Client Sample #: 11

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2071

QC Submittal:

Grid Archive ID #: E1E3

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	<u>25</u>	Secondary Filter Dia. (mm²):	<u>n/a</u>	Magnification:	<u>20,000X</u>
Primary EFA (mm²):	<u>385</u>	Secondary EFA (mm²):	<u>n/a</u>	Accelerating Voltage:	<u>100KeV</u>
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>		
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>		

Grid Opening:	<u>0.115</u> mm	Volume of Air Sampled:	<u>4935</u> Liters
Grid opening Area:	<u>0.0130</u> mm²		
Grid Openings Read / (Required):	<u>21</u>	Minimum Detection Limit:	<u>0.0003</u> s/cc
Total Area Analyzed:	<u>0.273</u> mm²	Analytical Sensitivity:	<u>3.66</u> s/mm²

Primary / Total Asbestos Structures:	<u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures:	<u>NSD</u>
0.5 - 5.0 µm:	<u>NSD</u>		
>5.0µm:	<u>NSD</u>		
Asbestos:	<u>&lt; 3.7</u> s/mm²	Non-Asbestos:	<u>&lt; 3.7</u> s/mm²
Asbestos:	<u>&lt; 0.00029</u> s/cc	Non-Asbestos:	<u>&lt; 0.00029</u> s/cc

- ☐ Place "x" in box if analysis "on-hold"
- ☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
E1 C6			NSD						
C5			NSD						
C4			NSD						
C3			P	3.5	0.5			Si Al	
C2			<del>P</del>						
C1			P	1.6	0.15			C2	
E1			NSD						
E2			NSD						
E3			NSD						
E4			NSD						
E5			NSD						
E3 F6			NSD						
F7			B	2.5	0.5				
F8			M	1.5	0.2			Si Al	
F9			NSD						
F10			M	1.5	0.2			Si Al, G, Fe	
D10			NSD						
D9			NSD						
D8			NSD						
D7			P	1.0	0.15			Cr	
D6			NSD						
	0	0						0	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

Prep Quality:	
Dissolution	<u>Good</u>
Carbon Film	<u>Good</u>
Loading	<u>7%</u>

Comments:

\* POSSIBLE FIBER

Analyzed By: M. Stewart

Reviewed By:

QC: CRAIG LISA 7/30/20

7/29/20

Client ID: L&R

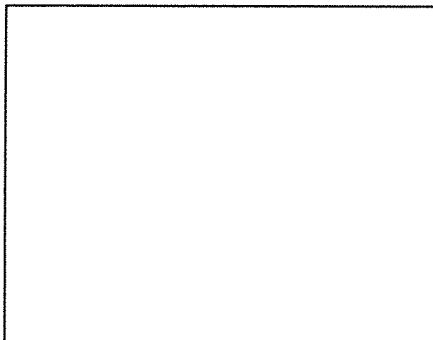
IATL Sample #: 7040584-1MS E3:F7

EDXA ID: ACTINOLITE/SiAl?

Plate # Cam Length Exp. Time

0.6 60

Sketch of Structure

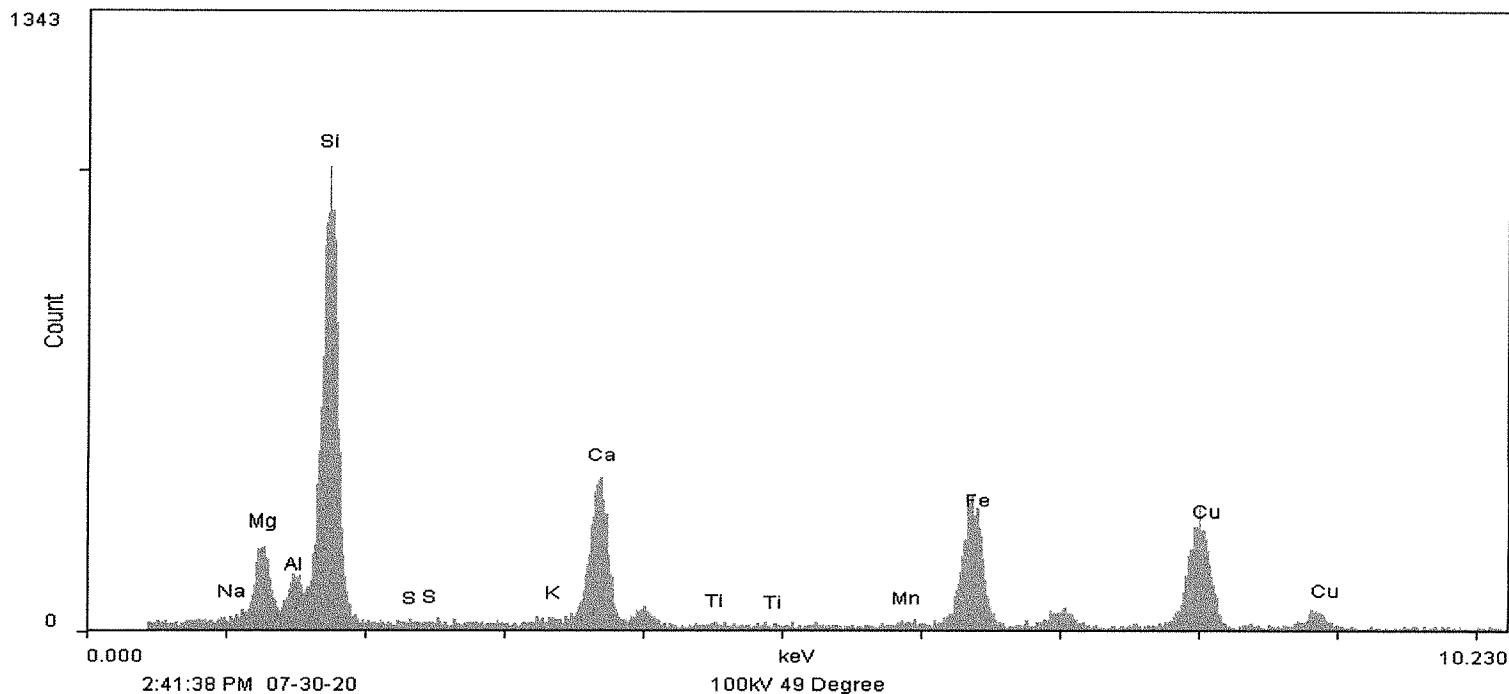


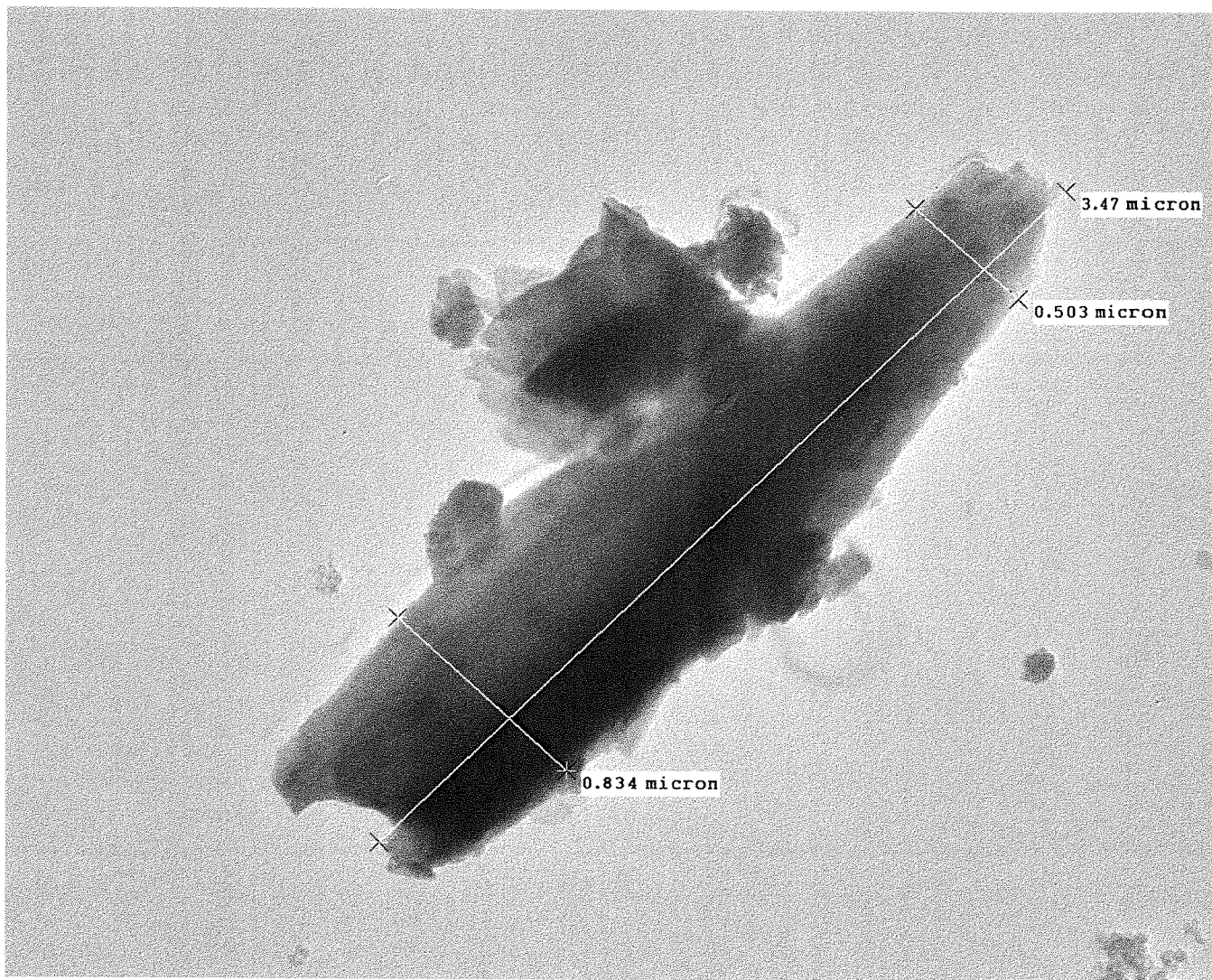
Elemental Composition:

Micrograph Plate # (if applicable):

Elements:	WT%	AT%	K_A	K_F	K_Z	Intensity	P/bkg
MgK	15.7	19.18	0.352	1.02	1.002	17.48	1.6
AlK	2.08	2.29	0.276	1.036	0.976	2.534	0.2
SiK	60.38	63.88	0.32	1.003	1.007	111.274	8.1
CaK	14.48	10.73	0.348	1.007	1.002	43.955	4.8
FeK	7.37	3.92	0.678	1	0.935	40.214	8.6

Elapsed LT: 60 sec.





7040584-BF.tif

7040584

Print Mag: 39900x @ 7.0 in

14:15 07/30/20

TEM Mode: Imaging

Microscopist: MS

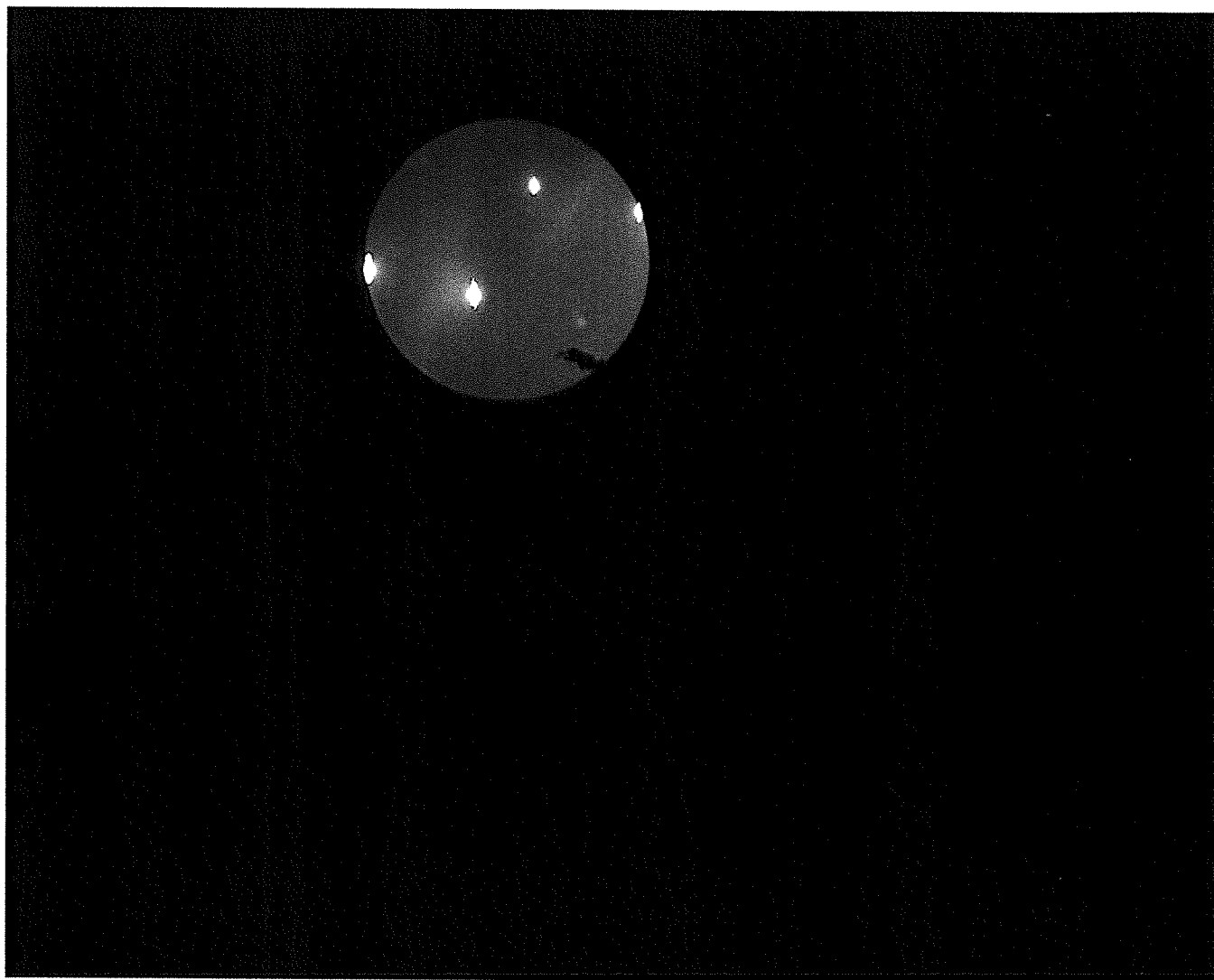
500 nm

HV=100kV

Direct Mag: 5000x

AMT Camera System





7040584-DP.tif

7040584

14:14 07/30/20

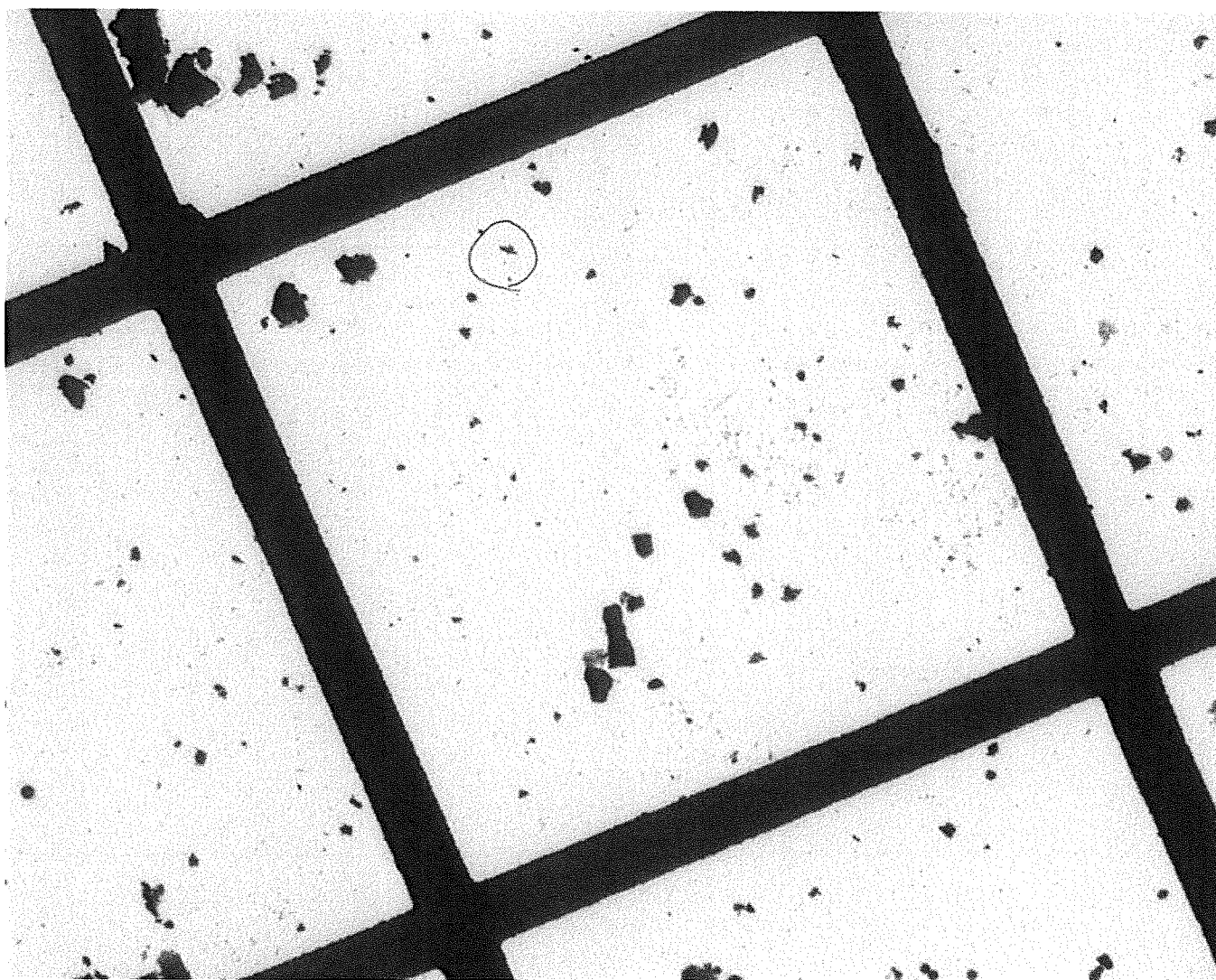
TEM Mode: Diffraction

Microscopist: MS

HV=100kV

Cam Len: 0.2 m

AMT Camera System



7040584-F7.tif

7040584

Print Mag: 799x @ 7.0 in

14:26 07/30/20

TEM Mode: Imaging

Microscopist: MS

10 microns

HV=100kV

Direct Mag: 100x

AMT Camera System

Low mag shot of E3: F7

3.5x.83 vs 2.5x.5

I only found one fiber/cleavage fragment. It does not match CL's dimensions but the onscreen spacing is congruous with an amphibole and its chemistry is close to Actinolite except for an Al peak. I do not have CL's as he didn't save it.



IATL  
Reports Group  
NG

9000 Commerce Parkway Suite B  
Mt. Laurel, New Jersey 08054  
Telephone: 8562319449  
Email: customerservice@iatl.com

### BATCH / SAMPLE MANAGEMENT REPORT

<b>Customer No:</b>	<b>LRG308</b>	<b>Batch Number:</b>	<b>617346</b>
<b>Customer:</b>	The L & R Group - Technical Services 680 South Progress Ave 2A Meridian ID	<b>Project:</b>	Mountain Home AFB
<b>Customer Rep:</b>	Shirley Clark	<b>Project Number:</b>	20050T
		<b>TAT:</b>	5 Day
<b># of Samples:</b>	<b>15</b>	<b>Analysis:</b>	<b>TEM - ISO 10312</b>
		<b>Date/Time Recd:</b>	<b>07/30/2020 10:30 AM</b>
		<b>Date/Time Due:</b>	<b>08/06/2020 5:00 PM</b>

**Client Notes:** N/A

**Lab Technician Notes:** N/A *package rec'd in good condition L*

**Accounting Notes:** N/A

**Report Processing Notes:** N/A

#### Shipping Error:

- \_\_\_\_\_ Samples were not received in a sealed container. Bulk samples not double bagged.
- \_\_\_\_\_ Air Cassettes received open in bag...sample integrity compromised, possible contamination.
- \_\_\_\_\_ Samples received wet.
- \_\_\_\_\_ Samples received covered with dust...possible cross contamination.
- \_\_\_\_\_ Sample containers damaged, contents spilled...possible cross contamination.
- \_\_\_\_\_ Paperwork received in the same bag as samples possible contamination.
- \_\_\_\_\_ No / Incomplete Chain of Custody Received.
- \_\_\_\_\_ No / Incomplete Sample Log Received.
- \_\_\_\_\_ Sample container IDs do not match the client's sample log.
- \_\_\_\_\_ No Turnaround Time indicated.
- \_\_\_\_\_ PCM Re-prep for TEM NIOSH 7402. Cassettes previously opened and portion of filter removed.
- \_\_\_\_\_ Blank (s) not submitted as required by the requested analytical method.
- \_\_\_\_\_ Minimum shipping requirements not attained. See attached Carrier Air Bill.
- \_\_\_\_\_ Other: No Field Blanks Provided. Lab Blanks prepared alongside samples.

#### Batch Error:

- \_\_\_\_\_ Wrong Client ID Listed
- \_\_\_\_\_ Wrong Client Location Listed
- \_\_\_\_\_ Wrong Project ID Listed
- \_\_\_\_\_ Wrong TurnAround Time Listed
- \_\_\_\_\_ Wrong Due Date Listed
- \_\_\_\_\_ Wrong Date / Time Received Listed
- \_\_\_\_\_ Wrong Analysis Method Listed
- \_\_\_\_\_ Wrong Number of Samples Listed

#### Analysis Acknowledgement

- ☐ TEM Prep \_\_\_\_\_
- ☐ TEM - ISO 10312 \_\_\_\_\_

#### Login Error:

- \_\_\_\_\_ Sample Log Stamped Incorrectly:
- \_\_\_\_\_ Sample Containers Mislabeled
- \_\_\_\_\_ Duplicate / Extra Samples Not Stamped
- \_\_\_\_\_ Lab Technician Bench Sheet Error

## Chain of Custody

—Airborne Asbestos—

### Contact Information

**Client Company:** The L&R Group  
**Office Address:** 680 S. Progress Ave.  
**City, State, Zip:** Meridian  
**Fax Number:** \_\_\_\_\_  
**Email Address:** Laurie@lrenviro.com

**Project Number:** 200050T  
**Project Name:** Mountain Home AFB  
**Primary Contact:** Laurie Kuther  
**Office Phone:** 208.813.7700  
**Cell Phone:** \_\_\_\_\_

### Matrix/Method:

- ☐ PCM: NIOSH 7400  
☐ PCM: OSHA ID-160  
☐ TEM: NIOSH 7402  
☐ TEM: AHERA 40 CFR 763  
☒ TEM: ISO 10312  
☐ TEM: ISO 13794  
☐ Other \_\_\_\_\_

### Special Instructions:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Turnaround Time

Preliminary Results Requested Date: \_\_\_\_\_  
Specific date / time  
☒ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day\* ☐ 12 Hour\*\* ☐ 6 Hour\*\* ☐ RUSH\*\*

\* End of next business day unless otherwise specified. \*\* Matrix Dependent. \*\*\*Please notify the lab before shipping\*\*\*

### Chain of Custody

Relinquished (Name/Organization):	<u>L&amp;R Group</u>	Date:	<u>7/29/2020</u>	Time:	<u>1400</u>
Received (Name / iATL):	<u>L&amp;R/30/2 @ 10:10am</u>	Date:	_____	Time:	_____
Sample Login (Name / iATL):	<u>L&amp;R/30/2 @ 10:30am</u>	Date:	_____	Time:	_____
Analysis(Name(s) / iATL):	<u>AMS</u>	Date:	<u>8/4/20</u>	Time:	_____
QA/QC Review (Name / iATL):	_____	Date:	_____	Time:	_____
Archived / Released:	_____	Date:	_____	Time:	_____
QA/QC InterLAB Use:	_____	Date:	_____	Time:	_____

*prep BR 813120* *JUL 30 2020*



## Sample Log

—Airborne Asbestos—

Client: **L&R Group**

Project: **200050T**

Sampling Date/Time: **7/29/2020**

Client Sample #	iATL #	Location/ Description	Flow Rate	Start End	Sampling time (min)	Area (ft2) Volume (L)	Results ( )
01	7042315	LR-043	7LPM	11:06am 10:33pm	687	4800	
02	7042316	LR-043	7LPM	11:13am 10:40pm	687	4800	
03	7042317	LR-043	7LPM	11:18am 10:45pm	687	4800	
04	7042318	LR-043	7LPM	11:20am 10:47pm	687	4800	
05	7042319	LR-043	7LPM	11:22pm 10:49pm	687	4800	
06	7042320	LR-043	7LPM	11:29am 10:56pm	687	4800	
07	7042321	LR-043	7LPM	11:54am 11:21pm	687	4800	
08	7042322	LR-043	7LPM	12:00pm 11:27pm	687	4800	
09	7042323	LR-043	7LPM	12:05pm 11:32pm	687	4800	
10	7042324	LR-043	7LPM	12:12pm 11:39pm	687	4800	
11	7042325	LR-043	7LPM	12:17pm 11:44pm	687	4800	
12	7042326	LR-043	7LPM	12:23pm 11:50pm	687	4800	
13	7042327	LR-043	7LPM	11:50am 11:17pm	687	4800	
14	7042328	LR-043	7LPM	12:28pm 11:55pm	687	4800	
15	7042329	LR-043	7LPM	12:40pm 12:04am	687	4800	

\* = Insufficient Sample Provided to Perform QC Reanalysis (<200mg)

\*\* = Insufficient Sample Provided to Analyze (<50mg) \*\*\* = Matrix / Substrate Interference Possible

FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.

These preliminary results are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.

## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID  
Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617346

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field:	_____	Date:	_____	Time:	_____
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/30/20	Time:	_____
Samples Prepped:	B. Reich	Date:	8/3/20	Time:	_____
Samples Analyzed:	M. Stewart	Date:	8/4/20	Time:	_____
Preliminary Results Faxed:	_____	Date:	_____	Time:	_____
Preliminary Results E-Mail:	_____	Date:	_____	Time:	_____

### Summary Data Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
01	7042315	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
02	7042316	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
03	7042317	4809.0	1	1	Chrysotile	3.7	0.000293
04	7042318	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
05	7042319	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
06	7042320	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
07	7042321	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
08	7042322	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
09	7042323	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

**NSD** = No Structures Detected **1** - Primary Structures: Fibers, bundles, clusters and matrices **2** - Total Structures: Includes component fibers of primary clusters and matrices **3** - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. **4** - Total Asbestos Structures in relation to area analyzed. **5** - Total Asbestos Structures of all sizes as a function of the volume of air sampled. **6** - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. **7** - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617346

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field:	_____	Date:	_____	Time:	_____
Samples Rec'd at Laboratory:	<u>L. D'Ornellas</u>	Date:	<u>7/30/20</u>	Time:	_____
Samples Prepped:	<u>B. Reich</u>	Date:	<u>8/3/20</u>	Time:	_____
Samples Analyzed:	<u>M. Stewart</u>	Date:	<u>8/5/20</u>	Time:	_____
Preliminary Results Faxed:	_____	Date:	_____	Time:	_____
Preliminary Results E-Mail:	_____	Date:	_____	Time:	_____

### Summary Data

#### Transmission Electron Microscopy

#### ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
10	7042324	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
11	7042325	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617346

Client No.: LRG308

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field:	_____	Date:	_____	Time:	_____
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/30/20	Time:	_____
Samples Prepped:	B. Reich	Date:	8/3/20	Time:	_____
Samples Analyzed:	M. Stewart	Date:	8/6/20	Time:	_____
Preliminary Results Faxed:	_____	Date:	_____	Time:	_____
Preliminary Results E-Mail:	_____	Date:	_____	Time:	_____

### Summary Data

#### Transmission Electron Microscopy

#### ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
12	7042326	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
13	7042327	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
14	7042328	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
15	7042329	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.





**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

†AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/04/20

IATL Sample #: 7042315

**Client Sample #:** 01

IATL Grid Box #: 2077

Grid Archive ID #: A1A3

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	2
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	7.3 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00059 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
A1	G6		NSD						
	G5		NSD						
	G4		F	1.4	0.2			SiAl - Other Fiber	
	G3		F	1	0.2			CaS - Gypsum	
	G2		NSD						
	G1		NSD						
	E1		NSD						
	E2		NSD						
	E3		NSD						
	E4		NSD						
	E5		NSD						
A3	F5		NSD						
	F4		NSD						
	F3		NSD						
	F2		NSD						
	F1		NSD						
	H1		NSD						
	H2		NSD						
	H3		NSD						
	H4		NSD						
	H5		NSD						
	0	0						2	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

**\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.**

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	FAIR
-------------	------

Loading	6%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/04/20

**IATL Sample #:** 7042316

**Client Sample #:** 02

IATL Grid Box #: 2077

Grid Archive ID #: A5A7

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115	mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130	mm <sup>2</sup>			
Grid Openings Read / (Required):	21		Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273	mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	1
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	$\dagger$ Chrysotile	** Amphibole	*** Non-Asbestos	$\mu\text{graph/EDS ID}$ or Comments*
A5	E5		NSD						
	E6		NSD						
	E7		NSD						
	E8		NSD						
	E9		NSD						
	E10		NSD						
	G10		NSD						
	G9		NSD						
	G8		NSD						
	G7		NSD						
	G6		NSD						
A7	D6		NSD						
	D7		NSD						
	D8		F	3	0.4			CaS - Gypsum	
	D9		NSD						
	D10		NSD						
	F10		NSD						
	F9		NSD						
	F8		NSD						
	F7		NSD						
	F6		NSD						
	0	0						1	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

**\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.**

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading	7%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By:

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/04/20

**IATL Sample #:** 7042317

**Client Sample #:** 03

IATL Grid Box #: 2077

Grid Archive ID #: **A9B2**

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115	mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130	mm <sup>2</sup>			
Grid Openings Read / (Required):	21		Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273	mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	1	/	1	Non-Asbestos Structures:	1
0.5 - 5.0 µm:	1				
>5.0µm:	NSD				
Asbestos:	3.7	s/mm <sup>2</sup>		Non-Asbestos:	3.7 s/mm <sup>2</sup>
Asbestos:	0.00029	s/cc		Non-Asbestos:	0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

---

Fraction of collection filter ashed:	0.25
--------------------------------------	------

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
A9 E5			NSD						
E4			NSD						
E3			NSD						
E2			F	2.8	0.3			SiAl - Other Fiber	
E1			NSD						
G1			NSD						
G2			NSD						
G3			NSD						
G4	1	1	F	2	0.05	CD			7042317-1
G5			NSD						
G6			NSD						
B2 E5			NSD						
E4			NSD						
E3			NSD						
E2			NSD						
E1			NSD						
C1			NSD						
C2			NSD						
C3			NSD						
C4			NSD						
C5			NSD						
	1	1						1	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

**\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.**

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading	7%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_



**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/04/20

**IATL Sample #:** 7042318

**Client Sample #:** 04

IATL Grid Box #: 2077

Grid Archive ID #: **B4B6**

Primary Filter Dia. (mm <sup>2</sup> ):	25	Secondary Filter Dia. (mm <sup>2</sup> ):	n/a		
Primary EFA (mm <sup>2</sup> ):	385	Secondary EFA (mm <sup>2</sup> ):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	2
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	7.3 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00059 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID		Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
B4	D6			NSD						
	D5			NSD						
	D4			NSD						
	D3			NSD						
	D2			NSD						
	D1			NSD						
	B1			NSD						
	B2			NSD						
	B3			NSD						
	B4			NSD						
	B5			NSD						
B6	B6			NSD						
	B7			NSD						
	B8			NSD						
	B9			NSD						
	B10			NSD						
	D10			F	2.5	0.4			CaS - Gypsum	
	D9			F	2.7	0.5			CaS - Gypsum	
	D8			NSD						
	D7			NSD						
	D6			NSD						
		0	0						2	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

**\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.**

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading	7%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

08/04/20

**IATL Sample #:** 7042319

**Client Sample #:** 05

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

**QC Submittal:**

Grid Archive ID #: **B8B10**

<sup>†</sup> AEM ID: III

JEOL, JEM-1230, EM18440033

EVEX

Primary Filter Dia. (mm²):	<b>25</b>	Secondary Filter Dia. (mm²):	<b>n/a</b>		
Primary EFA (mm²):	<b>385</b>	Secondary EFA (mm²):	<b>n/a</b>		
Primary Filter Type:	<b>MCE</b>	Secondary Filter Type:	<b>n/a</b>	Magnification:	20,000X
Primary Filter Pore Size (µm):	<b>0.8</b>	Secondary Filter Pore Size (µm):	<b>n/a</b>	Accelerating Voltage:	100KeV

Grid Opening:	0.115	mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130	mm <sup>2</sup>			
Grid Openings Read / (Required):	21		Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273	mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	1
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

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Fraction of collection filter ashed:	0.25
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Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
B8 G6			NSD						
G7			NSD						
G8			NSD						
G9			NSD						
G10			NSD						
E10			F	4.5	0.7			CaS - Gypsum	
E9			NSD						
E8			NSD						
E7			NSD						
E6			NSD						
E5			NSD						
B10 E5			NSD						
E4			NSD						
E3			NSD						
E2			NSD						
E1			NSD						
C1			NSD						
C2			NSD						
C3			NSD						
C4			NSD						
C5			NSD						
	0	0						1	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

**\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.**

### \*\*\* Characterize by EDS

<sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading	7%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/04/20

IATL Sample #: 7042320

Client Sample #: 06

IATL Grid Box #: 2077

Grid Archive ID #: C1C3

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	3
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	11.0 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00088 s/cc

☐ Place "x" in box if analysis "on-hold"

Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

## Analysis Data

\* (pcf) = possible cleavage fragment

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
C1	G6		NSD						
	G5		NSD						
	G4		NSD						
	G3		NSD						
	G2		NSD						
	G1		NSD						
	I1		NSD						
	I2		M	4	0.7			SiAl - Other Fiber	
	I3		NSD						
	I4		NSD						
	I5		M	4.3	0.8			SiAl - Other Fiber	
C3	H6		NSD						
	H7		NSD						
	H8		NSD						
	H9		NSD						
	H10		NSD						
	F10		NSD						
	F9		NSD						
	F8		NSD						
	F7		F	3.5	0.6			SiAl - Other Fiber	
	F6		NSD						
	0	0						3	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

**\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.**

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading	5%
---------	----

Comments:

Analyzed By: M. Stewart

Analyzed By: M. Stewart  
Reviewed By:

Client Name: <u>The L &amp; R Group - Technical Services</u>	Analysis Date: 08/04/20	IATL Sample #: <u>7042321</u>
Client Project #: _____		Client Sample #: <u>07</u>
Sample Type: <u>ISO 10312, Ambient Air -- Determination of Asbestos Fibres</u>		IATL Grid Box #: <u>2077</u>
QC Submittal: _____		Grid Archive ID #: <u>C5C7</u>
† AEM ID: <u>III</u> JEOL, JEM-1230, EM18440033      EVEX		

Primary Filter Dia. (mm²): <u>25</u>	Secondary Filter Dia. (mm²): <u>n/a</u>	
Primary EFA (mm²): <u>385</u>	Secondary EFA (mm²): <u>n/a</u>	
Primary Filter Type: <u>MCE</u>	Secondary Filter Type: <u>n/a</u>	Magnification: <u>20,000X</u>
Primary Filter Pore Size (µm): <u>0.8</u>	Secondary Filter Pore Size (µm): <u>n/a</u>	Accelerating Voltage: <u>100KeV</u>

Grid Opening: <u>0.115</u> mm	Volume of Air Sampled: <u>4809</u> Liters	
Grid opening Area: <u>0.0130</u> mm²		
Grid Openings Read / (Required): <u>21</u>	Minimum Detection Limit: <u>0.0003</u> s/cc	
Total Area Analyzed: <u>0.273</u> mm²	Analytical Sensitivity: <u>3.66</u> s/mm²	

Primary / Total Asbestos Structures: <u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures: <u>6</u>	
0.5 - 5.0 µm: <u>NSD</u>		
>5.0µm: <u>NSD</u>		
Asbestos: <u>&lt; 3.7</u> s/mm²	Non-Asbestos: <u>22.0</u> s/mm²	
Asbestos: <u>&lt; 0.00029</u> s/cc	Non-Asbestos: <u>0.00176</u> s/cc	

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
C5	C5		NSD						
	C6		NSD						
	C7		NSD						
	C8		NSD						
	C9		NSD						
	C10		F	3	0.2			SiAl - Other Fiber	
	E10		NSD						
	E9		NSD						
	E8		NSD						
	E7		F	6	1			CaS - Gypsum	
			F	3	0.6			SiAl - Other Fiber	7042321-1
	E6		F	4	0.8			SiAl - Other Fiber	
C7	D5		NSD						
	D4		NSD						
	D3		NSD						
	D2		B	1.8	0.3			CaS - Gypsum	
	D1		NSD						
	B1		NSD						
	B2		F	6.2	1			SiAl - Other Fiber	
	B3		NSD						
	B4		NSD						
	B5		NSD						
	0	0						6	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS      † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

<b>Prep Quality:</b>	
Dissolution	<u>GOOD</u>
Carbon Film	<u>GOOD</u>
Loading	<u>5%</u>

Comments: \_\_\_\_\_

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_



**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

†AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Analysis Date:

08/04/20

IATL Sample #: 7042322

**Client Sample #:** 08

IATL Grid Box #: 2077

Grid Archive ID #: C9D2

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115	mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130	mm <sup>2</sup>			
Grid Openings Read / (Required):	21		Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273	mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	< 3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	< 0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

(pcr) – possible cleavage fragment										
Grid Opening ID		Primary	Total	Structure F B M C	Length μm	Width μm	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
C9	I5			NSD						
	I6			NSD						
	I7			NSD						
	I8			NSD						
	I9			NSD						
	I10			NSD						
	G10			NSD						
	G9			NSD						
	G8			NSD						
	G7			NSD						
	G6			NSD						
D2	D5			NSD						
	D4			NSD						
	D3			NSD						
	D2			NSD						
	D1			NSD						
	B1			NSD						
	B2			NSD						
	B3			NSD						
	B4			NSD						
	B5			NSD						
	0	0						0		

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

**\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.**

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading	7%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

†AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/04/20

**IATL Sample #:** 7042323

**Client Sample #:** 09

IATL Grid Box #: 2077

Grid Archive ID #: **D4D6**

Primary Filter Dia. (mm²):	<b>25</b>	Secondary Filter Dia. (mm²):	<b>n/a</b>		
Primary EFA (mm²):	<b>385</b>	Secondary EFA (mm²):	<b>n/a</b>		
Primary Filter Type:	<b>MCE</b>	Secondary Filter Type:	<b>n/a</b>	Magnification:	20,000X
Primary Filter Pore Size (µm):	<b>0.8</b>	Secondary Filter Pore Size (µm):	<b>n/a</b>	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	< 3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	< 0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

(pct) = possible cleavage fragment									
Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
D4	J6			NSD					
	J5			NSD					
	J4			NSD					
	J3			NSD					
	J2			NSD					
	J1			NSD					
	H1			NSD					
	H2			NSD					
	H3			NSD					
	H4			NSD					
	H5			NSD					
D6	C4			NSD					
	C5			NSD					
	C6			NSD					
	C7			NSD					
	C8			NSD					
	A8			NSD					
	A7			NSD					
	A6			NSD					
	A5			NSD					
	A4			NSD					
	0	0						0	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	FAIR
-------------	------

Carbon Film	100%
Loading	1%

Comments:

Analyzed By: M. Stewart

Reviewed By: M. Stewart

Client ID: L+R

IATL Sample #: 7042321-1

EDXA ID: SiAl

Plate # Cam Length Exp. Time

Micrograph Plate # (if applicable):

0.6

60

Sketch of Structure

Elemental Composition:

Elements:	WT%	AT%	K_A	K_F	K_Z	Intensity	P/bkg
MgK	10.02	12.46	0.329	1.02	1.007	9.613	2.3
AlK	12.83	14.37	0.31	1.028	0.981	16.115	4.1
SiK	50.88	54.75	0.262	1.004	1.013	70.414	20.3
S K	3.33	3.14	0.16	1.008	1.011	3.244	1
K K	1.42	1.1	0.287	1.029	0.981	3.204	1.1
CaK	11.62	8.76	0.33	1.01	1.007	30.935	10.5
TiK	0.71	0.45	0.385	1.019	0.927	2.109	0.6
FeK	9.17	4.96	0.679	1	0.94	46.168	17

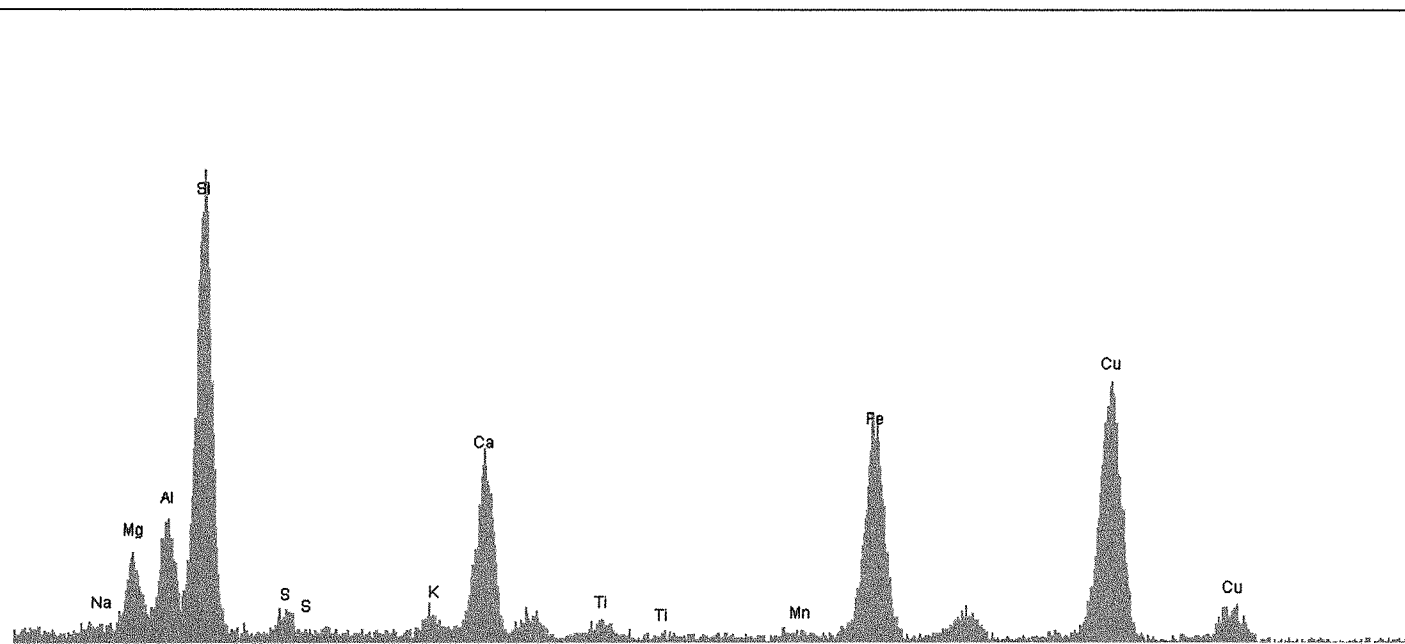
Elapsed L.T.:

76 sec.

839

Count

0



**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

<sup>†</sup> AEM ID: III

JEOL, JEM-1230, EM18440033

EVEX

**Analysis Date:**

08/05/20

IATL Sample #: 7042324

Client Sample #: 10

IATL Grid Box #: 2077

Grid Archive ID #: **D8D10**

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	1
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
D8 G6			NSD						
G5			F	1.2	0.2			SiAl - Other Fiber	
G4			NSD						
G3			NSD						
G2			NSD						
G1			NSD						
E1			NSD						
E2			NSD						
E3			NSD						
E4			NSD						
E5			NSD						
D10 E6			NSD						
E7			NSD						
E8			NSD						
E9			NSD						
E10			NSD						
C10			NSD						
C9			NSD						
C8			NSD						
C7			NSD						
C6			NSD						
	0	0						1	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
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Carbon Film	GOOD
-------------	------

Loading	6%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_



Client Name: The L & R Group - Technical Services

Client Project #:

Analysis Date:

08/05/20

IATL Sample #: 7042325

Client Sample #: 11

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

QC Submittal:

Grid Archive ID #: E1E3

† AEM ID: III

JEOL, JEM-1230, EM18440033

EVEX

Primary Filter Dia. (mm²):	<u>25</u>	Secondary Filter Dia. (mm²):	<u>n/a</u>
Primary EFA (mm²):	<u>385</u>	Secondary EFA (mm²):	<u>n/a</u>
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>
		Magnification:	<u>20,000X</u>
		Accelerating Voltage:	<u>100KeV</u>

Grid Opening:	<u>0.115</u> mm	Volume of Air Sampled:	<u>4809</u> Liters
Grid opening Area:	<u>0.0130</u> mm²		
Grid Openings Read / (Required):	<u>21</u>	Minimum Detection Limit:	<u>0.0003</u> s/cc
Total Area Analyzed:	<u>0.273</u> mm²	Analytical Sensitivity:	<u>3.66</u> s/mm²

Primary / Total Asbestos Structures:	<u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures:	<u>2</u>
0.5 - 5.0 µm:	<u>NSD</u>		
>5.0µm:	<u>NSD</u>		
Asbestos:	<u>&lt; 3.7</u> s/mm²	Non-Asbestos:	<u>7.3</u> s/mm²
Asbestos:	<u>&lt; 0.00029</u> s/cc	Non-Asbestos:	<u>0.00059</u> s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
E1	C5		NSD						
	C4		NSD						
	C3		NSD						
	C2		NSD						
	C1		F	1.5	0.3			SiAl - Other Fiber	
			F	4.9	0.4			SiAl - Other Fiber	
	E1		NSD						
	E2		NSD						
	E3		NSD						
	E4		NSD						
	E5		NSD						
	E6		NSD						
E3	F5		NSD						
	F4		NSD						
	F3		NSD						
	F2		NSD						
	F1		NSD						
	H1		NSD						
	H2		NSD						
	H3		NSD						
	H4		NSD						
	H5		NSD						
	0	0						2	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

#### Prep Quality:

Dissolution	<u>GOOD</u>
Carbon Film	<u>GOOD</u>
Loading	<u>7%</u>

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/06/20

IATL Sample #: 7042326

Client Sample #: 12

IATL Grid Box #: 2077

Grid Archive ID #: E5E7

Primary Filter Dia. (mm <sup>2</sup> ):		25	Secondary Filter Dia. (mm <sup>2</sup> ):		n/a		
Primary EFA (mm <sup>2</sup> ):		385	Secondary EFA (mm <sup>2</sup> ):		n/a		
Primary Filter Type:		MCE	Secondary Filter Type:		n/a	Magnification:	20,000X
Primary Filter Pore Size (μm):		0.8	Secondary Filter Pore Size (μm):		n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	5
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	18.3 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00147 s/cc

☐ Place "x" in box if analysis "on-hold"

Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
E5 F6			NSD						
F7			NSD						
F8			NSD						
F9			NSD						
F10			NSD						
H10			NSD						
H9			F	3.1	0.5			SiAl - Other Fiber	
H8			NSD						
H7			NSD						
H6			NSD						
E7 A5			NSD						
A4			NSD						
A3			NSD						
A2			F	3.5	0.6			CaS - Gypsum	
A1			NSD						
C1			F	6	1.2			SiAl - Other Fiber	
C2			NSD						
C3			NSD						
C4			F	0.7	0.1			SiAl - Other Fiber	
C5			M	1.2	0.1			SiAl - Other Fiber	
C6			NSD						
	0	0						5	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	FAIR
-------------	------

Loading	6%
---------	----

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

Client Name: The L & R Group - Technical Services

Client Project #:

Analysis Date:

08/06/20

IATL Sample #: 7042327

Client Sample #: 13

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

QC Submittal:

Grid Archive ID #: E9F2

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a
Primary Filter Type:	MCE	Secondary Filter Type:	n/a
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a
		Magnification:	20,000X
		Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm²			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm²	Analytical Sensitivity:	3.66	s/mm²

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	4
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	14.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00117 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
E9	H6		NSD						
	H5		F	2.5	0.4			SiAl - Other Fiber	
	H4		NSD						
	H3		NSD						
	H2		NSD						
	F1		F	3.5	0.6			SiAl - Other Fiber	
	F2		NSD						
	F3		NSD						
	F4		NSD						
	F5		NSD						
	F6		NSD						
F2	E6		NSD						
	E7		NSD						
	E8		NSD						
	E9		NSD						
	E10		NSD						
	C10		NSD						
	C9		NSD						
	C8		F	2.5	0.5			SiAl - Other Fiber	
			F	2.5	0.3			SiAl - Other Fiber	
	C7		NSD						
	C6		NSD						
		0	0					4	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

Prep Quality:	
Dissolution	GOOD
Carbon Film	FAIR
Loading	5%

Comments:

Analyzed By: M. Stewart

Reviewed By:

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/06/20

IATL Sample #: 7042328

**Client Sample #:** 14

IATL Grid Box #: 2077

Grid Archive ID #: **F4F6**

Primary Filter Dia. (mm²):	<b>25</b>	Secondary Filter Dia. (mm²):	<b>n/a</b>		
Primary EFA (mm²):	<b>385</b>	Secondary EFA (mm²):	<b>n/a</b>		
Primary Filter Type:	<b>MCE</b>	Secondary Filter Type:	<b>n/a</b>	Magnification:	20,000X
Primary Filter Pore Size (µm):	<b>0.8</b>	Secondary Filter Pore Size (µm):	<b>n/a</b>	Accelerating Voltage:	100KeV

Grid Opening:	0.115	mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130	mm <sup>2</sup>			
Grid Openings Read / (Required):	21		Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273	mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>3</sup>		Non-Asbestos:	< 3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	< 0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID		Primary	Total	Structure F B M C	Length μm	Width μm	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
F4	E5			NSD						
	E6			NSD						
	E7			NSD						
	E8			NSD						
	E9			NSD						
	E10			NSD						
	G10			NSD						
	G9			NSD						
	G8			NSD						
	G7			NSD						
	G6			NSD						
F6	H6			NSD						
	H7			NSD						
	H8			NSD						
	H9			NSD						
	H10			NSD						
	F10			NSD						
	F9			NSD						
	F8			NSD						
	F7			NSD						
	F6			NSD						
		0	0						0	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS

<sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	FAIR
-------------	------

Loading	1%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By: Mr. Stewart



2 of 2

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

08/06/20

**IATL Sample #: 7042315-REP**

Client Sample #: 1

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2071

**QC Submittal:**

Grid Archive ID #: S6S8

<sup>†</sup> AEM ID: III

JEOL, JEM-1230, EM18440033

EVEX

Primary Filter Dia. (mm²):	<u>25</u>	Secondary Filter Dia. (mm²):	<u>n/a</u>		
Primary EFA (mm²):	<u>385</u>	Secondary EFA (mm²):	<u>n/a</u>		
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>	Magnification:	20,000X
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809 Liters
Grid opening Area:	0.0130 mm <sup>2</sup>		
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003 s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66 s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	2
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	7.3 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00059 s/cc

☐ Place "x" in box if analysis "on-hold"☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

## Analysis Data

\* (pcf) = possible cleavage fragment

Grid Opening ID		Primary	Total	Structure F B M C	Length μm	Width μm	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
S6	C6			NSD						
	C5			NSD						
	C4			NSD						
	C3			NSD						
	C2			NSD						
	C1			NSD						
	E1			NSD						
	E2			F	1	0.2			SiAl - Other Fiber	
	E3			F	13	2.5			SiAl - Other Fiber	
	E4			NSD						
	E5			NSD						
	S8	D5			NSD					
D4				NSD						
D3				NSD						
D2				NSD						
D1				NSD						
B1				NSD						
B2				NSD						
B3				NSD						
B4				NSD						
B5				NSD						
		0	0						2	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	FAIR
-------------	------

Loading	7%
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Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

Client Name: The L & R Group - Technical Services

Analysis Date:

IATL Sample #: 7042326-REP

Client Project #:

08/06/20

Client Sample #: 12

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2071

QC Submittal:

Grid Archive ID #: SI0T1

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	<u>25</u>	Secondary Filter Dia. (mm²):	<u>n/a</u>
Primary EFA (mm²):	<u>385</u>	Secondary EFA (mm²):	<u>n/a</u>
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>
		Magnification:	<u>20,000X</u>
		Accelerating Voltage:	<u>100KeV</u>

Grid Opening:	<u>0.115</u> mm	Volume of Air Sampled:	<u>4809</u> Liters
Grid opening Area:	<u>0.0130</u> mm²		
Grid Openings Read / (Required):	<u>21</u>	Minimum Detection Limit:	<u>0.0003</u> s/cc
Total Area Analyzed:	<u>0.273</u> mm²	Analytical Sensitivity:	<u>3.66</u> s/mm²

Primary / Total Asbestos Structures:	<u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures:	<u>5</u>
0.5 - 5.0 µm:	<u>NSD</u>		
>5.0µm:	<u>NSD</u>		
Asbestos:	<u>&lt; 3.7</u> s/mm²	Non-Asbestos:	<u>18.3</u> s/mm²
Asbestos:	<u>&lt; 0.00029</u> s/cc	Non-Asbestos:	<u>0.00147</u> s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

### Analysis Data

\* (pcf) = possible cleavage fragment

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
S10 C5			M	0.5	0.1			SiAl - Other Fiber	
			M	2.5	0.3			SiAl - Other Fiber	
C4			F	2.5	0.3			SiAl - Other Fiber	
C3			NSD						
C2			NSD						
C1			NSD						
E1			NSD						
E2			NSD						
E3			NSD						
E4			NSD						
E5			NSD						
E6			NSD						
T1 F6			NSD						
F7			NSD						
F8			B	4.5	0.5			CaS - Gypsum	
F9			NSD						
F10			NSD						
D10			NSD						
D9			NSD						
D8			NSD						
D7			M	1	0.2			SiAl - Other Fiber	
D6			NSD						
	0	0						5	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

Prep Quality:	
Dissolution	<u>GOOD</u>
Carbon Film	<u>GOOD</u>
Loading	<u>7%</u>

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

†AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/06/20

IATL Sample #: LB

**Client Sample #:** **LB**

IATL Grid Box #: 2071

Grid Archive ID #: T3

Primary Filter Dia. (mm <sup>2</sup> ):	25	Secondary Filter Dia. (mm <sup>2</sup> ):	n/a		
Primary EFA (mm <sup>2</sup> ):	385	Secondary EFA (mm <sup>2</sup> ):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	0	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	10	Minimum Detection Limit:	NA	s/cc
Total Area Analyzed:	0.130 mm <sup>2</sup>	Analytical Sensitivity:	7.69	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 7.7	s/mm <sup>2</sup>		Non-Asbestos:	< 7.7 s/mm <sup>2</sup>
Asbestos:	NA	s/cc		Non-Asbestos:	NA s/cc

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Fraction of collection filter ashed:	0.25
--------------------------------------	------

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

## Analysis Data

[illegible]

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading	<1%
---------	-----

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_







9000 Commerce Parkway Suite B  
Mt. Laurel, New Jersey 08054  
Telephone: 8562319449  
Email: customerservice@iatl.com

### BATCH / SAMPLE MANAGEMENT REPORT

<b>Customer No:</b>	<b>LRG308</b>	<b>Batch Number:</b>	<b>617671</b>
<b>Customer:</b>	The L & R Group - Technical Services 680 South Progress Ave 2A Meridian ID	<b>Project:</b>	Mountain Home AFB
<b>Customer Rep:</b>	Shirley Clark	<b>Project Number:</b>	200050T
		<b>TAT:</b>	5 Day
<b># of Samples:</b>	<b>15</b>	<b>Date/Time Recd:</b>	<b>08/06/2020 8:33 AM</b>
	<b>Analysis: TEM - ISO 10312</b>	<b>Date/Time Due:</b>	<b>08/13/2020 5:00 PM</b>

**Client Notes:** N/A

**Lab Technician Notes:** N/A

**Accounting Notes:** N/A

**Report Processing Notes:** N/A

#### Shipping Error:

- \_\_\_\_ Samples were not received in a sealed container. Bulk samples not double bagged.
- \_\_\_\_ Air Cassettes received open in bag...sample integrity compromised, possible contamination.
- \_\_\_\_ Samples received wet.
- \_\_\_\_ Samples received covered with dust...possible cross contamination.
- \_\_\_\_ Sample containers damaged, contents spilled...possible cross contamination.
- \_\_\_\_ Paperwork received in the same bag as samples possible contamination.
- \_\_\_\_ No / Incomplete Chain of Custody Received.
- \_\_\_\_ No / Incomplete Sample Log Received.
- \_\_\_\_ Sample container IDs do not match the client's sample log.
- \_\_\_\_ No Turnaround Time indicated.
- \_\_\_\_ PCM Re-prep for TEM NIOSH 7402. Cassettes previously opened and portion of filter removed.
- \_\_\_\_ Blank (s) not submitted as required by the requested analytical method.
- \_\_\_\_ Minimum shipping requirements not attained. See attached Carrier Air Bill.
- \_\_\_\_ Other: *No Field Blanks provided, Lab Blanks prepared alongside samples.*

#### Batch Error:

- \_\_\_\_ Wrong Client ID Listed
- \_\_\_\_ Wrong Client Location Listed
- \_\_\_\_ Wrong Project ID Listed
- \_\_\_\_ Wrong TurnAround Time Listed
- \_\_\_\_ Wrong Due Date Listed
- \_\_\_\_ Wrong Date / Time Received Listed
- \_\_\_\_ Wrong Analysis Method Listed
- \_\_\_\_ Wrong Number of Samples Listed

#### Analysis Acknowledgement

- ☐ TEM Prep \_\_\_\_\_
- ☐ TEM - ISO 10312 \_\_\_\_\_

#### Login Error:

- \_\_\_\_ Sample Log Stamped Incorrectly:
- \_\_\_\_ Sample Containers Mislabeled
- \_\_\_\_ Duplicate / Extra Samples Not Stamped
- \_\_\_\_ Lab Technician Bench Sheet Error

## Chain of Custody

–Airborne Asbestos–

### Contact Information

**Client Company:** The L&R Group  
**Office Address:** 680 S. Progress Ave.  
**City, State, Zip:** Meridian  
**Fax Number:**  
**Email Address:** Laurie@lrenviro.com

**Project Number:** 200050T  
**Project Name:** Mountain Home AFB  
**Primary Contact:** Laurie Kuther  
**Office Phone:** 208.813.7700  
**Cell Phone:**

### Matrix/Method:

- ☐ PCM: NIOSH 7400  
☐ PCM: OSHA ID-160  
☐ TEM: NIOSH 7402  
☐ TEM: AHERA 40 CFR 763  
☒ TEM: ISO 10312  
☐ TEM: ISO 13794  
☐ Other \_\_\_\_\_

### Special Instructions:

### Turnaround Time

Preliminary Results Requested Date: \_\_\_\_\_  
Specific date / time  
☒ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day\* ☐ 12 Hour\*\* ☐ 6 Hour\*\* ☐ RUSH\*\*  
☐ Verbal ☐ Email ☐ Fax

\* End of next business day unless otherwise specified. \*\* Matrix Dependent. \*\*\*Please notify the lab before shipping\*\*\*

### Chain of Custody

Relinquished (Name/Organization):	L&R Group	Date:	8/05/2020	Time:	1400
Received (Name / iATL):	<u>L</u>	Date:		Time:	
Sample Login (Name / iATL):	<u>h 8/6/20 @ 8:30am</u>	Date:		Time:	
Analysis(Name(s) / iATL):	<u>MS</u>	Date:	<u>8/7/20</u>	Time:	
QA/QC Review (Name / iATL):		Date:		Time:	<u>AUG - 6 2020</u>
Archived / Released:		QA/QC InterLAB Use:		Date:	

prop BL 8/6/20

## Sample Log

—Airborne Asbestos—

Client: **L&R Group**

Project: **200050T**

Sampling Date/Time: **8/5/2020**

Client Sample #	iATL #	Location/ Description	Flow Rate	Start End	Sampling time (min)	Area (ft <sup>2</sup> ) Volume (L)	Results ( )
01	7045849	LR-043	7LPM	10:35 am 10:02 pm	687	4800	
02	7045850	LR-043	7LPM	10:44 am 10:11 pm	687	4800	
03	7045851	LR-043	7LPM	10:49 am 10:16 pm	687	4800	
04	7045852	LR-043	7LPM	10:53 am 10:20 pm	687	4800	
05	7045853	LR-043	7LPM	10:59 am 10:26 pm	687	4800	
06	7045854	LR-043	7LPM	11:06 am 10:33 pm	687	4800	
07	7045855	LR-043	7LPM	11:34 am 11:01 pm	687	4800	
08	7045856	LR-043	7LPM	11:50 am 11:17 pm	687	4800	
09	7045857	LR-043	7LPM	11:57 am 11:24 pm	687	4800	
10	7045858	LR-043	7LPM	12:12 pm 11:39 pm	687	4800	
11	7045859	LR-043	7LPM	12:17 pm 11:44 pm	687	4800	
12	7045860	LR-043	7LPM	12:24 pm 11:53 pm	687	4800	
13	7045861	LR-043	7LPM	11:30 am 10:57 pm	687	4800	
14	7045862	LR-043	7LPM	12:25 pm 11:52 pm	687	4800	
15	7045863	LR-043	7LPM	12:32 pm 11:59 pm	687	4800	

\* = Insufficient Sample Provided to Perform QC Reanalysis (<200mg)

\*\* = Insufficient Sample Provided to Analyze (<50mg) \*\*\* = Matrix / Substrate Interference Possible

FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.

These preliminary results are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.



## FINAL RESULTS

### Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID  
Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617671  
Turn-Around Time: 5 Days

#### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

#### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

#### Chain of Custody:

Samples Taken in Field:	_____	Date:	_____	Time:	_____
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	8/6/20	Time:	_____
Samples Prepped:	B. Reich	Date:	8/6/20	Time:	_____
Samples Analyzed:	M. Stewart	Date:	8/7/20	Time:	_____
Preliminary Results Faxed:	_____	Date:	_____	Time:	_____
Preliminary Results E-Mail:	_____	Date:	_____	Time:	_____

#### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
1	7045849	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
2	7045850	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
3	7045851	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
4	7045852	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
5	7045853	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
6	7045854	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
7	7045855	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
8	7045856	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

**NSD** = No Structures Detected **1** - Primary Structures: Fibers, bundles, clusters and matrices **2** - Total Structures: Includes component fibers of primary clusters and matrices **3** - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. **4** - Total Asbestos Structures in relation to area analyzed. **5** - Total Asbestos Structures of all sizes as a function of the volume of air sampled. **6** - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. **7** - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

08/07/20

**IATL Sample #:** 7045849

Client Sample #: 1

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

**QC Submittal:**

Grid Archive ID #: **G5G7**

<sup>†</sup>AEM ID: III

JEOL, JEM-1230, EM18440033

EYEX

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115	mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130	mm <sup>2</sup>			
Grid Openings Read / (Required):	21		Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273	mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	< 3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	< 0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

## Analysis Data

\* (pcf) = possible cleavage fragment

Grid Opening ID		Primary	Total	Structure F B M C	Length μm	Width μm	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
G5	G6			NSD						
	G5			NSD						
	G4			NSD						
	G3			NSD						
	G2			NSD						
	G1			NSD						
	E1			NSD						
	E2			NSD						
	E3			NSD						
	E4			NSD						
	E5			NSD						
	G7	A5			NSD					
A6				NSD						
A7				NSD						
A8				NSD						
A9				NSD						
A10				NSD						
C10				NSD						
C9				NSD						
C8				NSD						
C7				NSD						
		0	0						0	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	FAIR
-------------	------

Loading	1%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

Client Name: The L & R Group - Technical Services

Client Project #:

Analysis Date:

08/07/20

IATL Sample #: 7045850

Client Sample #: 2

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

QC Submittal:

Grid Archive ID #: G9H2

† AEM ID: III

JEOL, JEM-1230, EM18440033

EVEX

Primary Filter Dia. (mm <sup>2</sup> ):	<u>25</u>	Secondary Filter Dia. (mm <sup>2</sup> ):	<u>n/a</u>	Magnification:	<u>20,000X</u>
Primary EFA (mm <sup>2</sup> ):	<u>385</u>	Secondary EFA (mm <sup>2</sup> ):	<u>n/a</u>	Accelerating Voltage:	<u>100KeV</u>
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>		
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>		

Grid Opening:	<u>0.115</u> mm	Volume of Air Sampled:	<u>4809</u> Liters
Grid opening Area:	<u>0.0130</u> mm <sup>2</sup>		
Grid Openings Read / (Required):	<u>21</u>	Minimum Detection Limit:	<u>0.0003</u> s/cc
Total Area Analyzed:	<u>0.273</u> mm <sup>2</sup>	Analytical Sensitivity:	<u>3.66</u> s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	<u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures:	<u>3</u>
0.5 - 5.0 µm:	<u>NSD</u>		
>5.0µm:	<u>NSD</u>		
Asbestos:	<u>&lt; 3.7</u> s/mm <sup>2</sup>	Non-Asbestos:	<u>11.0</u> s/mm <sup>2</sup>
Asbestos:	<u>&lt; 0.00029</u> s/cc	Non-Asbestos:	<u>0.00088</u> s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

### Analysis Data

\* (pcf) = possible cleavage fragment

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
G9 C6			M	1.7	0.3			SiAl - Other Fiber	
C7			NSD						
C8			NSD						
C9			NSD						
C10			NSD						
E10			NSD						
E9			NSD						
E8			NSD						
E7			NSD						
E6			NSD						
E5			NSD						
H2 D5			NSD						
D4			M	0.6	0.1			SiAl - Other Fiber	
D3			NSD						
D2			NSD						
D1			F	3	0.5			SiAl - Other Fiber	
F1			NSD						
F2			NSD						
F3			NSD						
F4			NSD						
F5			NSD						
	0	0						3	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber

Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

#### Prep Quality:

Dissolution	<u>GOOD</u>
Carbon Film	<u>GOOD</u>
Loading	<u>5%</u>

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

08/07/20

IATL Sample #: 7045851

**Client Sample #:** 3

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

IATL Grid Box #: 2077

Grid Archive ID #: H4H6

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	3
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	11.0 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00088 s/cc

Place "x" in box if analysis "on-hold"  
 Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	$\dagger$ Chrysotile	** Amphibole	*** Non-Asbestos	$\mu\text{graph/EDS ID}$ or Comments*
H4	G5			NSD					
	G6			NSD					
	G7			NSD					
	G8			NSD					
	G9			NSD					
	G10			F	0.7	0.1		SiAl - Other Fiber	
	E10			NSD					
	E9			NSD					
	E8			NSD					
	E7			NSD					
	E6			NSD					
H6	F5			NSD					
	F4			NSD					
	F3			M	3	0.5		SiAl - Other Fiber	
	F2			NSD					
	F1			NSD					
	D1			NSD					
	D2			NSD					
	D3			NSD					
	D4			F	1.6	0.3		SiAl - Other Fiber	
	D5			NSD					
	0	0						3	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>†</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading 5%

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_



Client Name: The L & R Group - Technical Services

Client Project #:

Analysis Date:

08/07/20

IATL Sample #: 7045852

Client Sample #: 4

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

QC Submittal:

IATL Grid Box #: 2077

Grid Archive ID #: H8H10

† AEM ID: III

JEOL, JEM-1230, EM18440033

EVEX

Primary Filter Dia. (mm <sup>2</sup> ):	<u>25</u>	Secondary Filter Dia. (mm <sup>2</sup> ):	<u>n/a</u>
Primary EFA (mm <sup>2</sup> ):	<u>385</u>	Secondary EFA (mm <sup>2</sup> ):	<u>n/a</u>
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>
		Magnification:	<u>20,000X</u>
		Accelerating Voltage:	<u>100KeV</u>

Grid Opening:	<u>0.115</u> mm	Volume of Air Sampled:	<u>4809</u> Liters
Grid opening Area:	<u>0.0130</u> mm <sup>2</sup>		
Grid Openings Read / (Required):	<u>21</u>	Minimum Detection Limit:	<u>0.0003</u> s/cc
Total Area Analyzed:	<u>0.273</u> mm <sup>2</sup>	Analytical Sensitivity:	<u>3.66</u> s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	<u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures:	<u>2</u>
0.5 - 5.0 µm:	<u>NSD</u>		
>5.0µm:	<u>NSD</u>		
Asbestos:	<u>&lt; 3.7</u> s/mm <sup>2</sup>	Non-Asbestos:	<u>7.3</u> s/mm <sup>2</sup>
Asbestos:	<u>&lt; 0.00029</u> s/cc	Non-Asbestos:	<u>0.00059</u> s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
H8 G5			F	3.5	0.5			SiAl - Other Fiber	
G6			NSD						
G7			NSD						
G8			NSD						
G9			NSD						
G10			NSD						
I10			NSD						
I9			NSD						
I8			M	2.2	0.4			SiAl - Other Fiber	
I7			NSD						
I6			NSD						
H10 H6			NSD						
H7			NSD						
H8			NSD						
H9			NSD						
H10			NSD						
F10			NSD						
F9			NSD						
F8			NSD						
F7			NSD						
F6			NSD						
	0	0						2	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber

Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

Prep Quality:

Dissolution GOOD

Carbon Film GOOD

Loading 5%

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

08/07/20

**IATL Sample #:** 7045853

**Client Sample #:** **5**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

**QC Submittal:**

Grid Archive ID #: I113

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	<u>25</u>	Secondary Filter Dia. (mm²):	<u>n/a</u>		
Primary EFA (mm²):	<u>385</u>	Secondary EFA (mm²):	<u>n/a</u>		
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>	Magnification:	20,000X
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>	Accelerating Voltage:	100KeV

Grid Opening:	0.115	mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130	mm <sup>2</sup>			
Grid Openings Read / (Required):	21		Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273	mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	< 3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	< 0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

## Analysis Data

\* (pcf) = possible cleavage fragment

Grid Opening ID		Primary	Total	Structure F B M C	Length μm	Width μm	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
I1	D6			NSD						
	D5			NSD						
	D4			NSD						
	D3			NSD						
	D2			NSD						
	D1			NSD						
	F1			NSD						
	F2			NSD						
	F3			NSD						
	F4			NSD						
	F5			NSD						
	I3	H5			NSD					
H4				NSD						
H3				NSD						
H2				NSD						
H1				NSD						
J1				NSD						
J2				NSD						
J3				NSD						
J4				NSD						
J5				NSD						
		0	0						0	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>†</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Dissertation	GOOD
Carbon Film	FAIR

Carbon film	Time
Loading	1%

Comments:

Analyzed By: M. Stewart

Reviewed By: Mr. Stewart

Client Name: The L & R Group - Technical Services

Client Project #:

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

QC Submittal:

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Analysis Date:

08/07/20

IATL Sample #: 7045854

Client Sample #: 6

IATL Grid Box #: 2077

Grid Archive ID #: 1517

Primary Filter Dia. (mm <sup>2</sup> ):	25	Secondary Filter Dia. (mm <sup>2</sup> ):	n/a
Primary EFA (mm <sup>2</sup> ):	385	Secondary EFA (mm <sup>2</sup> ):	n/a
Primary Filter Type:	MCE	Secondary Filter Type:	n/a
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a
		Magnification:	20,000X
		Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	5
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>	Non-Asbestos:	18.3	s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc	Non-Asbestos:	0.00147	s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
I5 H5			NSD						
H6			F	7	0.7			SiAl - Other Fiber	7045854-1
H7			NSD						
H8			F	5.5	1			SiAl - Other Fiber	
			F	7.5	1.2			SiAl - Other Fiber	7045854-2
H9			F	3.8	0.5			SiAl - Other Fiber	
H10			F	1.8	0.3			SiAl - Other Fiber	
F10			NSD						
F9			NSD						
F8			NSD						
F7			NSD						
F6			NSD						
I7 D5			NSD						
D4			NSD						
D3			NSD						
D2			NSD						
D1			NSD						
F1			NSD						
F2			NSD						
F3			NSD						
F4			NSD						
F5			NSD						
0		0						5	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

<b>Prep Quality:</b>	
Dissolution	GOOD
Carbon Film	GOOD
Loading	5%

Comments: \_\_\_\_\_

Analyzed By: M. Stewart  
Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

†AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/07/20

**IATL Sample #:** 7045855

Client Sample #: 7

IATL Grid Box #: 2077

Grid Archive ID #: 19J2

Primary Filter Dia. (mm <sup>2</sup> ):	25	Secondary Filter Dia. (mm <sup>2</sup> ):	n/a		
Primary EFA (mm <sup>2</sup> ):	385	Secondary EFA (mm <sup>2</sup> ):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	6
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>1</sup>		Non-Asbestos:	22.0 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00176 s/cc

Place "x" in box if analysis "on-hold"  
 Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
J9	H5			F	2.3	0.3			SiAl - Other Fiber
	H6			NSD					
	H7			M	3	0.5			SiMg - Talc
	H8			NSD					
	H9			NSD					
	H10			F	15	2			SiAl - Other Fiber
	F10			NSD					
	F9			NSD					
	F8			F	2	0.2			SiAl - Other Fiber
	F7			NSD					
	F6			NSD					
J2	E5			NSD					
	E4			NSD					
	E3			F	1.7	0.1			SiAl - Other Fiber
	E2			NSD					
	E1			NSD					
	C1			NSD					
	C2			F	1.5	0.3			SiAl - Other Fiber
	C3			NSD					
	C4			NSD					
	C5			NSD					
	0	0						6	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS

<sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
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Carbon Film	GOOD
-------------	------

Loading	5%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By:



**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/07/20

**IATL Sample #:** 7045856

**Client Sample #:** 8

IATL Grid Box #: 2077

Grid Archive ID #: J4J6

Primary Filter Dia. (mm²):	<b>25</b>	Secondary Filter Dia. (mm²):	<b>n/a</b>		
Primary EFA (mm²):	<b>385</b>	Secondary EFA (mm²):	<b>n/a</b>		
Primary Filter Type:	<b>MCE</b>	Secondary Filter Type:	<b>n/a</b>	Magnification:	20,000X
Primary Filter Pore Size (µm):	<b>0.8</b>	Secondary Filter Pore Size (µm):	<b>n/a</b>	Accelerating Voltage:	100KeV

Grid Opening:	0.115	mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130	mm <sup>2</sup>			
Grid Openings Read / (Required):	21		Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273	mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	2
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>3</sup>		Non-Asbestos:	7.3 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00059 s/cc

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

☐ Place "x" in box if analysis "on-hold"☐ Place "x" in box if overloaded (>25%)

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	$\dagger$ Chrysotile	** Amphibole	*** Non-Asbestos	$\mu\text{graph/EDS ID}$ or Comments*
J4	F5			NSD					
	F6			NSD					
	F7			NSD					
	F8			NSD					
	F9			NSD					
	F10			NSD					
	D10			NSD					
	D9			NSD					
	D8			NSD					
	D7			NSD					
	D6			NSD					
J6	H5			NSD					
	H4			NSD					
	G3			NSD					
	G2			F	3	0.6		SiAl - Other Fiber	
	H1			NSD					
	A3			M	1	0.1		SiAl - Other Fiber	
	A4			NSD					
	A5			NSD					
	A6			NSD					
	A7			NSD					
	0	0						2	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS

<sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	FAIR
-------------	------

Loading	3%
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Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

Client ID: L&R

IATL Sample #: 7045854-1

EDXA ID: EDENITE?

Plate # Cam Length Exp. Time

Micrograph Plate # (if applicable):

0.6

60

Sketch of Structure

Elemental Composition:

Na K 0.000 2530 5.147 6.344 0.053

Mg K 0.000 12453 17.781 20.730 0.197

Al K 0.000 4647 7.429 7.802 0.055

Si K 0.000 49214 56.110 56.610 0.500

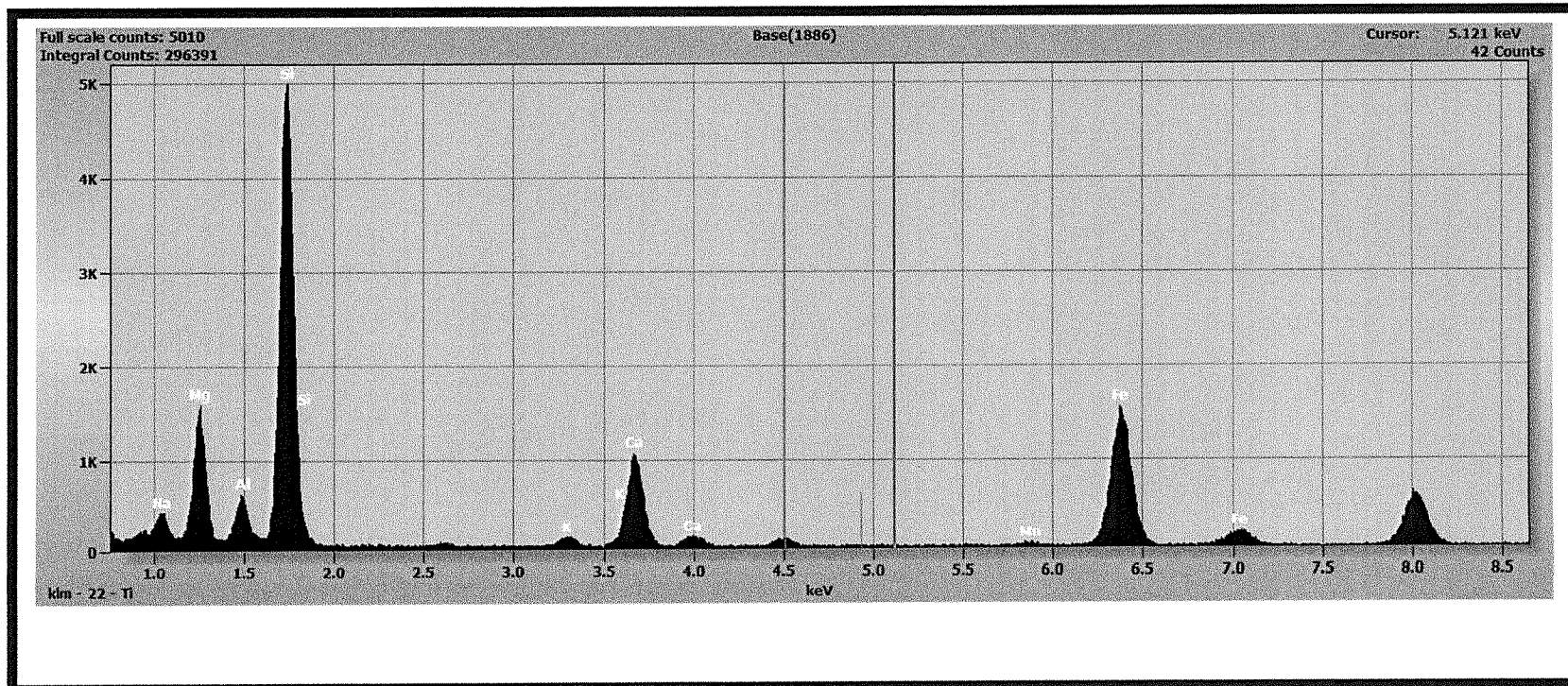
K K 0.000 1116 0.809 0.586 0.006

Ca K 0.000 13493 7.372 5.212 0.071

Fe K 0.000 24624 5.351 2.715 0.119

Elapsed LT:

sec.



Client ID: L&R

IATL Sample #: 7045854-2

EDXA ID: SiAl?

Plate # Cam Length Exp. Time

Micrograph Plate # (if applicable):

0.6

60

Sketch of Structure

Elemental Composition:

Element Base(1887) Base(1887) Base(1887) Base(1887) Base(1887)

Mg K 0.000 13327 16.426 19.184 0.230

Al K 0.000 7686 11.703 12.312 0.100

Si K 0.000 48352 60.001 60.641 0.537

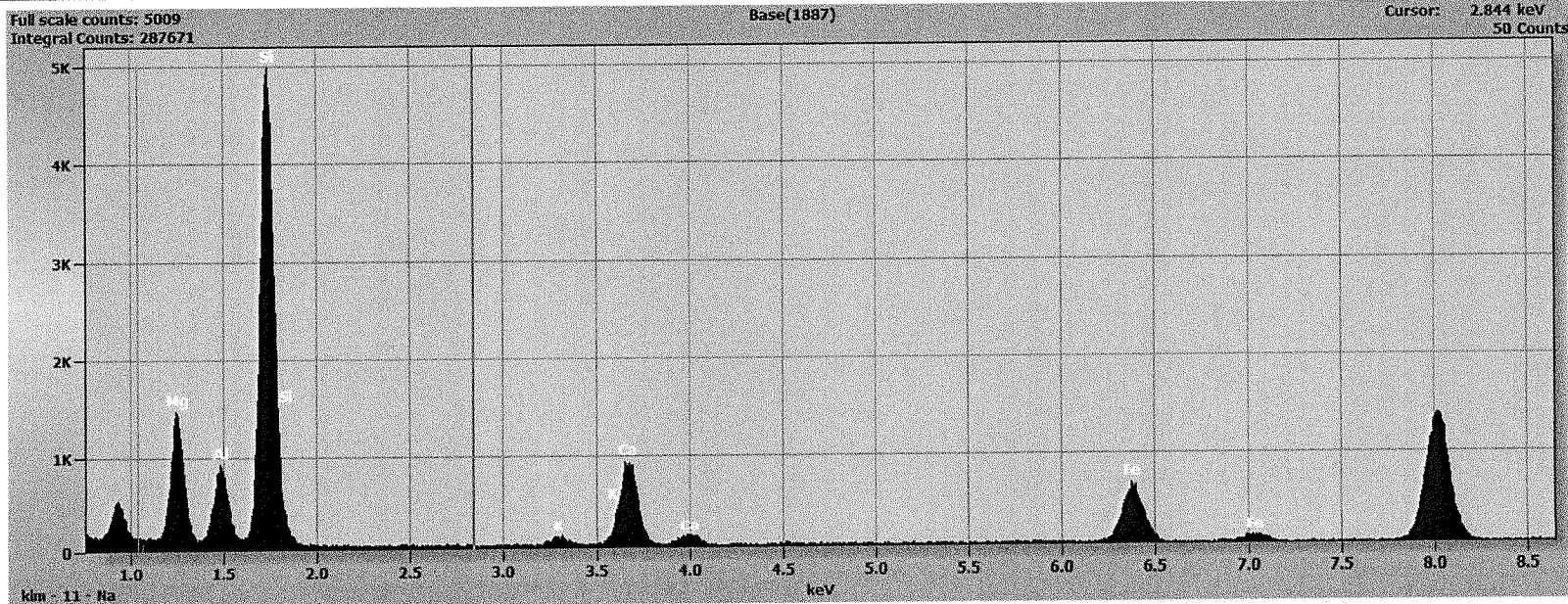
K K 0.000 1077 0.912 0.662 0.006

Ca K 0.000 12239 8.157 5.777 0.070

Fe K 0.000 10637 2.801 1.424 0.056

Elapsed LT:

sec.



Client ID:

L&R

IATL Sample #:

7045855-1

EDXA ID:

SiAl?

Plate # Cam Length Exp. Time

Micrograph Plate # (if applicable):

0.6

60

Sketch of Structure

Elemental Composition:

Element Base(1888) Base(1888) Base(1888) Base(1888) Base(1888)

Mg K 0.000 2947 16.686 19.872 0.194

Al K 0.000 1102 7.131 7.650 0.054

Si K 0.000 12865 60.985 62.851 0.544

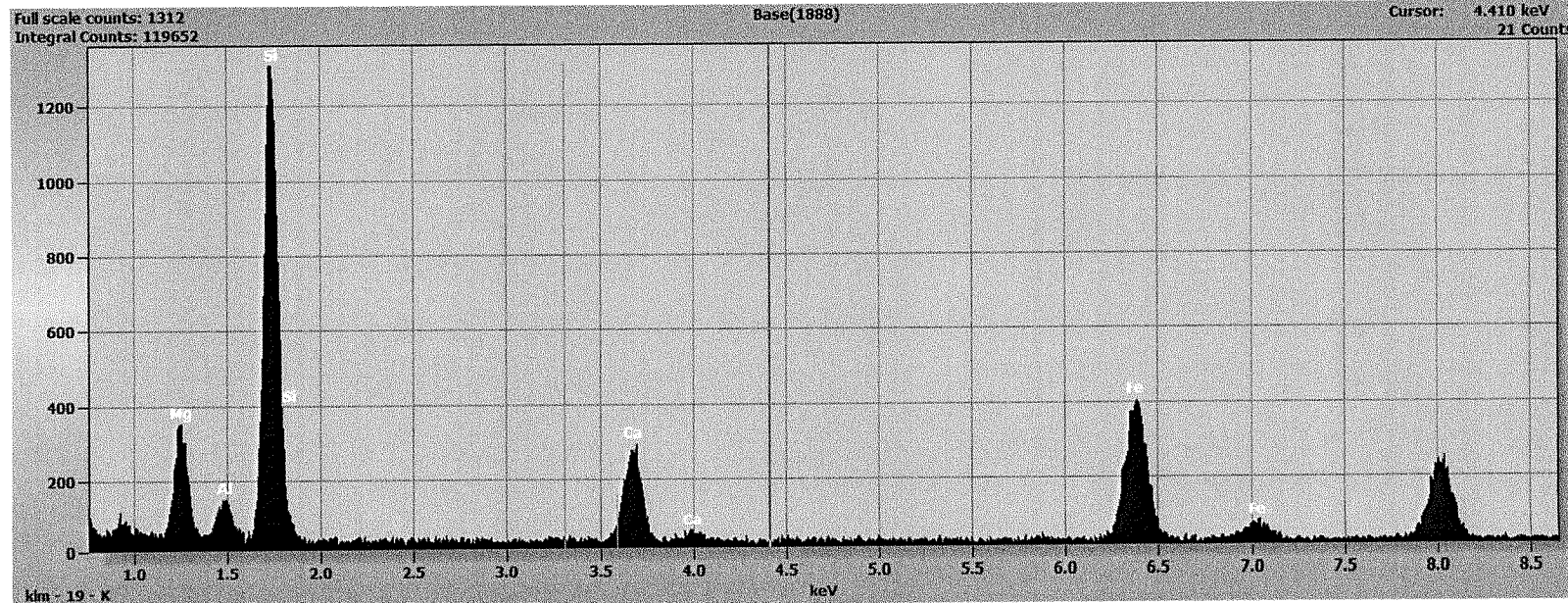
Ca K 0.000 3469 8.587 6.201 0.076

Ca L 0.000 0 — — —

Fe K 0.000 6580 6.612 3.427 0.152

Elapsed LT:

sec.





## FINAL RESULTS

### Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID  
Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617671  
Turn-Around Time: 5 Days

#### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

#### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

#### Chain of Custody:

Samples Taken in Field:	_____	Date:	_____	Time:	_____
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	8/6/20	Time:	_____
Samples Prepped:	B. Reich	Date:	8/6/20	Time:	_____
Samples Analyzed:	M. Stewart	Date:	8/8/20	Time:	_____
Preliminary Results Faxed:	_____	Date:	_____	Time:	_____
Preliminary Results E-Mail:	_____	Date:	_____	Time:	_____

#### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
9	7045857	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
10	7045858	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
11	7045859	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
12	7045860	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
13	7045861	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
14	7045862	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
15	7045863	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

Client Name: The L & R Group - Technical Services

Client Project #:

Analysis Date:

08/08/20

IATL Sample #: 7045857

Client Sample #: 9

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

QC Submittal:

Grid Archive ID #: J8J10

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	<u>25</u>	Secondary Filter Dia. (mm²):	<u>n/a</u>	Magnification:	<u>20,000X</u>
Primary EFA (mm²):	<u>385</u>	Secondary EFA (mm²):	<u>n/a</u>	Accelerating Voltage:	<u>100KeV</u>
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>		
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>		
Grid Opening:	<u>0.115</u> mm	Volume of Air Sampled:	<u>4809</u> Liters		
Grid opening Area:	<u>0.0130</u> mm²				
Grid Openings Read / (Required):	<u>21</u>	Minimum Detection Limit:	<u>0.0003</u> s/cc		
Total Area Analyzed:	<u>0.273</u> mm²	Analytical Sensitivity:	<u>3.66</u> s/mm²		

Primary / Total Asbestos Structures:	<u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures:	<u>4</u>
0.5 - 5.0 µm:	<u>NSD</u>		
>5.0µm:	<u>NSD</u>		
Asbestos:	<u>&lt; 3.7</u> s/mm²	Non-Asbestos:	<u>14.7</u> s/mm²
Asbestos:	<u>&lt; 0.00029</u> s/cc	Non-Asbestos:	<u>0.00117</u> s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
J8 G5			F	0.8	0.1			SiAl - Other Fiber	
G4			NSD						
G3			NSD						
G2			NSD						
G1			NSD						
E1			NSD						
E2			NSD						
E3			F	1.8	0.3			SiAl - Other Fiber	
E4			NSD						
E5			NSD						
E6			F	0.7	0.1			SiAl - Other Fiber	
J10 F5			NSD						
F4			NSD						
F3			NSD						
F2			NSD						
F1			NSD						
H1			NSD						
H2			M	1.5	0.2			SiAl - Other Fiber	
H3			NSD						
H4			NSD						
H5			NSD						
	0	0						4	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

Prep Quality:	
Dissolution	<u>GOOD</u>
Carbon Film	<u>GOOD</u>
Loading	<u>5%</u>

Comments: \_\_\_\_\_

Analyzed By: M. Stewart  
Reviewed By: \_\_\_\_\_



Client Name: The L & R Group - Technical Services

Client Project #:

Analysis Date:

08/08/20

IATL Sample #: 7045859

Client Sample #: 11

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

QC Submittal:

IATL Grid Box #: 2077

Grid Archive ID #: K6K8

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	<u>25</u>	Secondary Filter Dia. (mm²):	<u>n/a</u>
Primary EFA (mm²):	<u>385</u>	Secondary EFA (mm²):	<u>n/a</u>
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>
		Magnification:	<u>20,000X</u>
		Accelerating Voltage:	<u>100KeV</u>

Grid Opening:	<u>0.115</u> mm	Volume of Air Sampled:	<u>4809</u> Liters
Grid opening Area:	<u>0.0130</u> mm²		
Grid Openings Read / (Required):	<u>21</u>	Minimum Detection Limit:	<u>0.0003</u> s/cc
Total Area Analyzed:	<u>0.273</u> mm²	Analytical Sensitivity:	<u>3.66</u> s/mm²

Primary / Total Asbestos Structures:	<u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures:	<u>6</u>
0.5 - 5.0 µm:	<u>NSD</u>		
>5.0µm:	<u>NSD</u>		
Asbestos:	<u>&lt; 3.7</u> s/mm²	Non-Asbestos:	<u>22.0</u> s/mm²
Asbestos:	<u>&lt; 0.00029</u> s/cc	Non-Asbestos:	<u>0.00176</u> s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

### Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
K6 D6			NSD						
D5			NSD						
D4			NSD						
D3			NSD						
D2			NSD						
D1			NSD						
F1			NSD						
F2			NSD						
F3			F	1.6	0.2			SiAl - Other Fiber	
			F	4.5	0.4			SiAl - Other Fiber	
F4			NSD						
F5			NSD						
K8 G6			NSD						
G7			F	2.7	0.2			SiAl - Other Fiber	
G8			NSD						
G9			F	3	0.3			SiAl - Other Fiber	
G10			NSD						
I10			NSD						
I9			NSD						
I8			F	0.8	0.1			SiAl - Other Fiber	
I7			F	2.7	0.3			SiAl - Other Fiber	
I6			NSD						
	0	0						6	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

Prep Quality:	
Dissolution	<u>GOOD</u>
Carbon Film	<u>GOOD</u>
Loading	<u>5%</u>

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_



**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

08/08/20

**IATL Sample #:** 7045860

**Client Sample #:** 12

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

**OC Submittal:**

Grid Archive ID #: **K10L1**

† AEM ID: III

JEOL. JEM-1230. EM18440033

EVEX

Primary Filter Dia. (mm <sup>2</sup> ):	25	Secondary Filter Dia. (mm <sup>2</sup> ):	n/a		
Primary EFA (mm <sup>2</sup> ):	385	Secondary EFA (mm <sup>2</sup> ):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	4
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	14.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00117 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

## Analysis Data

\* (pcf) = possible cleavage fragment

Grid Opening ID		Primary	Total	Structure F B M C	Length μm	Width μm	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
K10	H5			NSD						
	H6			NSD						
	H7			NSD						
	H8			NSD						
	H9			NSD						
	H10			NSD						
	E10			NSD						
	E9			F	4	1			SiAl - Other Fiber	
	E8			NSD						
	E7			M	1	0.2			SiMg - Talc	
E6			NSD							
L1	D6			F	7.5	1.5			SiMg - Talc	
	D7			F	1.5	0.2			SiAl - Other Fiber	
	D8			NSD						
	D9			NSD						
	D10			NSD						
	F10			NSD						
	F9			NSD						
	F8			NSD						
	F7			NSD						
	F6			NSD						
		0	0						4	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>†</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading	4%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_



**Client Name:** The L & R Group - Technical Services

**Client Project #:****Analysis Date:**

08/08/20

IATL Sample #: 7045862

**Client Sample #:** 14

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

**QC Submittal:**

Grid Archive ID #: L7L9

<sup>†</sup> AEM ID: III

JEOL, JEM-1230, EM18440033

EVE X

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115	mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130	mm <sup>2</sup>			
Grid Openings Read / (Required):	21		Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273	mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	< 0.0 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	< 0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

---

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

## Analysis Data

\* (pcf) = possible cleavage fragment

Grid Opening ID		Primary	Total	Structure F B M C	Length μm	Width μm	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
L7	D6			NSD						
	D5			NSD						
	D4			NSD						
	D3			NSD						
	D2			NSD						
	D1			NSD						
	F1			NSD						
	F2			NSD						
	F3			NSD						
	F4			NSD						
	F5			NSD						
L9	D6			NSD						
	D7			NSD						
	D8			NSD						
	D9			NSD						
	D10			NSD						
	B10			NSD						
	B9			NSD						
	B8			NSD						
	B7			NSD						
	B6			NSD						
	0	0						0		

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber

Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	FAIR
-------------	------

Category	Rate
Loading	1%

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_





## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617671

Client No.: LRG308

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field:	_____	Date:	_____	Time:	_____
Samples Rec'd at Laboratory:	<u>L. D'Ornellas</u>	Date:	<u>8/6/20</u>	Time:	_____
Samples Prepped:	<u>B. Reich</u>	Date:	<u>8/6/20</u>	Time:	_____
Samples Analyzed:	<u>M. Stewart</u>	Date:	<u>8/11/20</u>	Time:	_____
Preliminary Results Faxed:	_____	Date:	_____	Time:	_____
Preliminary Results E-Mail:	_____	Date:	_____	Time:	_____

### Summary Data

#### Transmission Electron Microscopy

#### ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
I	7045849-rep	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
II	7045859-rep	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
LB	LB	0.0	None Detected	0	None Detected	< 7.7	NA
LB	LB	0.0	None Detected	0	None Detected	< 7.7	NA

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25% 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

08/11/20

**IATL Sample #:** 7045849-rep

**Client Sample #:** 1

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

**QC Submittal:**

Grid Archive ID #: **M10N1**

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a	
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a	
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification: 20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage: 100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809 Liters
Grid opening Area:	0.0130 mm <sup>2</sup>		
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003 s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66 s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	< 3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	< 0.00029 s/cc

Fraction of collection filter ashed: 0,25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	$\dagger$ Chrysotile	** Amphibole	*** Non-Asbestos	$\mu\text{graph/EDS ID}$ or Comments*
M10 E1			NSD						
E2			NSD						
E3			NSD						
E4			NSD						
E5			NSD						
E6			NSD						
E7			NSD						
E8			NSD						
E9			NSD						
E10			NSD						
D10			NSD						
N1 H1			NSD						
H2			NSD						
H3			NSD						
H4			NSD						
H5			NSD						
H6			NSD						
H7			NSD						
H8			NSD						
H9			NSD						
I9			NSD						
	0	0						0	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	FAIR
-------------	------

Loading	2%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**OC Submittal:**

†AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/11/20

**IATL Sample #:** 7045859-rep

**Client Sample #:** 11

IATL Grid Box #: 2077

Grid Archive ID #: N3N5

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	21	Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273 mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	1
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>2</sup>		Non-Asbestos:	3.7 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

## Analysis Data

\* (pcf) = possible cleavage fragment

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
N3 C1			NSD						
C2			NSD						
C3			M	1.5	0.25			SiAl - Other Fiber	
C4			NSD						
C5			NSD						
C6			NSD						
C7			NSD						
C8			NSD						
C9			NSD						
C10			NSD						
D10			NSD						
N5 D1			NSD						
D2			NSD						
D3			NSD						
D4			NSD						
D5			NSD						
D6			NSD						
D7			NSD						
D8			NSD						
D9			NSD						
D10			NSD						
	0	0						1	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>†</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	FAIR
-------------	------

Loading	3%
---------	----

Comments:

Analyzed By: M. Stewart

Reviewed By:

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

08/11/20

IATL Sample #: LB

**Client Sample #:** **LB**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

IATL Grid Box #: 2077

**QC Submittal:**

Grid Archive ID #: M6

†AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm²):	25	Secondary Filter Dia. (mm²):	n/a		
Primary EFA (mm²):	385	Secondary EFA (mm²):	n/a		
Primary Filter Type:	MCE	Secondary Filter Type:	n/a	Magnification:	20,000X
Primary Filter Pore Size (µm):	0.8	Secondary Filter Pore Size (µm):	n/a	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	0	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	10	Minimum Detection Limit:	NA	s/cc
Total Area Analyzed:	0.130 mm <sup>2</sup>	Analytical Sensitivity:	7.69	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 7.7	s/mm <sup>2</sup>		Non-Asbestos:	< 0.0 s/mm <sup>2</sup>
Asbestos:	NA	s/cc		Non-Asbestos:	NA s/cc

Place "x" in box if analysis "on-hold"  
 Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

## Analysis Data

\* (pcf) = possible cleavage fragment

[illegible]

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading	<u>&lt;1%</u>
---------	---------------

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_



**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**OC Submittal:**

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

**Analysis Date:**

08/11/20

IATL Sample #: LB

**Client Sample #:** **LB**

IATL Grid Box #: 2077

Grid Archive ID #: N7

Primary Filter Dia. (mm²):	<u>25</u>	Secondary Filter Dia. (mm²):	<u>n/a</u>		
Primary EFA (mm²):	<u>385</u>	Secondary EFA (mm²):	<u>n/a</u>		
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>	Magnification:	20,000X
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>	Accelerating Voltage:	100KeV

Grid Opening:	0.115 mm	Volume of Air Sampled:	0	Liters
Grid opening Area:	0.0130 mm <sup>2</sup>			
Grid Openings Read / (Required):	10	Minimum Detection Limit:	NA	s/cc
Total Area Analyzed:	0.130 mm <sup>2</sup>	Analytical Sensitivity:	7.69	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 $\mu\text{m}$ :	NSD				
>5.0 $\mu\text{m}$ :	NSD				
Asbestos:	< 7.7	s/mm <sup>2</sup>		Non-Asbestos:	< 0.0 s/mm <sup>2</sup>
Asbestos:	NA	s/cc		Non-Asbestos:	NA s/cc

☐ Place "x" in box if analysis "on-hold"☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

[illegible]

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Loading	$<1\%$
---------	--------

Comments:

Analyzed By: M. Stewart

Reviewed By: \_\_\_\_\_

**Client Name:** The L & R Group - Technical Services

**Client Project #:**

**Analysis Date:**

08/07/20

**Sample Type:** ISO 10312, Ambient Air -- Determination of Asbestos Fibres

**QC Submittal:**

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

IATL Sample #: 7045850

**Client Sample #:** 2

IATL Grid Box #: 2077

Grid Archive ID #: **G9H2**

Primary Filter Dia. (mm <sup>2</sup> ):	<u>25</u>	Secondary Filter Dia. (mm <sup>2</sup> ):	<u>n/a</u>		
Primary EFA (mm <sup>2</sup> ):	<u>385</u>	Secondary EFA (mm <sup>2</sup> ):	<u>n/a</u>		
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>	Magnification:	20,000X
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>	Accelerating Voltage:	100KeV

Grid Opening:	0.115	mm	Volume of Air Sampled:	4809	Liters
Grid opening Area:	0.0130	mm <sup>2</sup>			
Grid Openings Read / (Required):	21		Minimum Detection Limit:	0.0003	s/cc
Total Area Analyzed:	0.273	mm <sup>2</sup>	Analytical Sensitivity:	3.66	s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	NSD	/	NSD	Non-Asbestos Structures:	NSD
0.5 - 5.0 µm:	NSD				
>5.0µm:	NSD				
Asbestos:	< 3.7	s/mm <sup>1</sup>		Non-Asbestos:	< 0.0 s/mm <sup>2</sup>
Asbestos:	< 0.00029	s/cc		Non-Asbestos:	< 0.00029 s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

---

Fraction of collection filter ashed:	0.25
--------------------------------------	------

Volume (mls) used for ash dispersal:

Volume of dispersion filtered: 40

\* (pcf) = possible cleavage fragment

## Analysis Data

Grid Opening ID	Primary	Total	Structure F B M C	Length $\mu\text{m}$	Width $\mu\text{m}$	† Chrysotile	** Amphibole	*** Non-Asbestos	μgraph/EDS ID or Comments*
G9 C6			1	2.0	0.3			SiAl	
C7			1	2.7	0.3			SiAl	
* C8			1					SiAlM <sub>7</sub> G Fe	
C9			NSD						
C10			NSD						
E10			NSD						
E9			NSD						
E8			1	1.0	0.3			C <sub>2</sub>	
E7			NSD						
E6			NSD						
E5			1	1.0	0.2			C <sub>2</sub>	
H2 D5			NSD						
D4			1	1.5	0.06			SiAl	
D3			NSD						
D2			NSD						
* D1			1	4.0	0.5			Si	
F1									
F2									
F3									
F4			1	2.0	0.15			Gr	
F5			NSD	NSD	NSD			Gr	
	0	0						0	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS <sup>1</sup> AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

**Prep Quality:**

Dissolution	GOOD
-------------	------

Carbon Film	GOOD
-------------	------

Carbon Film	500%
Loading	5%

Comments:

- \* SiAl,  $3.5 \times 0.06 \mu m$
- Si<sub>3</sub>N<sub>4</sub>/Al<sub>2</sub>O<sub>3</sub> FC  $3.0 \times 0.5 \mu m$

Analyzed By: M. Stewart

Reviewed By: C. H. 516A

8/13/20

Client Name: The L & R Group - Technical Services

Client Project #:

Analysis Date:

08/08/20

IATL Sample #: 7045860

Client Sample #: 12

Sample Type: ISO 10312, Ambient Air -- Determination of Asbestos Fibres

QC Submittal:

IATL Grid Box #: 2077

Grid Archive ID #: K10L1

† AEM ID: III JEOL, JEM-1230, EM18440033 EVEX

Primary Filter Dia. (mm <sup>2</sup> ):	<u>25</u>	Secondary Filter Dia. (mm <sup>2</sup> ):	<u>n/a</u>
Primary EFA (mm <sup>2</sup> ):	<u>385</u>	Secondary EFA (mm <sup>2</sup> ):	<u>n/a</u>
Primary Filter Type:	<u>MCE</u>	Secondary Filter Type:	<u>n/a</u>
Primary Filter Pore Size (µm):	<u>0.8</u>	Secondary Filter Pore Size (µm):	<u>n/a</u>
		Magnification:	<u>20,000X</u>
		Accelerating Voltage:	<u>100KeV</u>

Grid Opening:	<u>0.115</u> mm	Volume of Air Sampled:	<u>4809</u> Liters
Grid opening Area:	<u>0.0130</u> mm <sup>2</sup>		
Grid Openings Read / (Required):	<u>21</u>	Minimum Detection Limit:	<u>0.0003</u> s/cc
Total Area Analyzed:	<u>0.273</u> mm <sup>2</sup>	Analytical Sensitivity:	<u>3.66</u> s/mm <sup>2</sup>

Primary / Total Asbestos Structures:	<u>NSD</u> / <u>NSD</u>	Non-Asbestos Structures:	<u>NSD</u>
0.5 - 5.0 µm:	<u>NSD</u>		
>5.0µm:	<u>NSD</u>		
Asbestos:	<u>&lt; 3.7</u> s/mm <sup>2</sup>	Non-Asbestos:	<u>&lt; 0.0</u> s/mm <sup>2</sup>
Asbestos:	<u>&lt; 0.00029</u> s/cc	Non-Asbestos:	<u>&lt; 0.00029</u> s/cc

☐ Place "x" in box if analysis "on-hold"

☐ Place "x" in box if overloaded (>25%)

Fraction of collection filter ashed: 0.25

Volume (mls) used for ash dispersal: 40

Volume of dispersion filtered: 40

### Analysis Data

\* (pcf) = possible cleavage fragment

Grid Opening ID	Primary	Total	Structure F B M C	Length µm	Width µm	† Chrysotile	** Amphibole	*** Non-Asbestos	µgraph/EDS ID or Comments*
K10 H5			<u>1</u>	<u>3.6</u>	<u>1.5</u>			<u>SIA/K</u>	
H6			<u>NSD</u>						
H7			<u>NSD</u>						
H8			<u>NSD</u>						
H9			<u>NSD</u>						
H10			<u>NSD</u>						
E10			<u>NSD</u>						
E9			<u>NSD</u>						
E8			<u>1</u>	<u>1.4</u>	<u>0.25</u>			<u>Cr</u>	
E7			<u>NSD</u>						
E6			<u>NSD</u>						
L1 D6			<u>1</u>	<u>9.0</u>	<u>2.5</u>			<u>SIA/</u>	
D7			<u>1</u>	<u>1.2</u>	<u>0.25</u>			<u>Ti</u>	
D8			<u>NSD</u>						
D9			<u>NSD</u>						
D10			<u>NSD</u>						
F10			<u>1</u>	<u>4.5</u>	<u>0.7</u>			<u>Si</u>	
F9			<u>NSD</u>						
F8			<u>NSD</u>						
F7			<u>1</u>	<u>2.4</u>	<u>0.4</u>			<u>SIA/Fe</u>	
F6			<u>NSD</u>						
	<u>0</u>	<u>0</u>						<u>0</u>	

† Must confirm by Morphology, SAED, and EDXA for each suspect asbestos fiber  
Record visible prominent Chrysotile DP reflections (002, 004, 110, 130, 220, 200)

\*\* Define Amphibole (DP obtained Y/N). Print-out EDS and attach.

\*\*\* Characterize by EDS † AEM (Analytical Electron Microscope)

SEE REVERSE: FIBER ORIENTATION MAP

Prep Quality:	
Dissolution	<u>GOOD</u>
Carbon Film	<u>GOOD</u>
Loading	<u>4%</u>

Comments:

Analyzed By: M. Stewart

Reviewed By: C. L. J. L.

8/13/20

# Appendix QA Data

QAPP Worksheet #28 – QC Samples Table (Bulk)

Matrix		Bulk			
Analytical Group		PLM			
Analytical Method/SOP Reference		USEPA 600/R-93/116/PLM.007			
QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action?	Measurement Performance Criteria
Method Blank	Daily use of non-ACM material	<0.25%	Determine the source of the contamination.	Analyst	Same as Method/SOP QC Acceptance Limits
Intra-analyst reanalysis	2% of samples analyzed per day	R-value -1/+1 Exceptions at low level quant	Second analyst performs another reanalysis, initial analyst revisits/reanalyzes sample.	Analyst QA Manager	Same as Method/SOP QC Acceptance Limits
Inter-analyst Quality assurance	7% of sample analyzed per day	R-value -1/+1 Exceptions at low level quant	Second analyst performs another reanalysis, if need a tertiary analyst follows. Initial analyst revisits/reanalyzes sample.	Analyst QA Manager	Same as Method/SOP QC Acceptance Limits
Inter-laboratory Quality assurance	Quarterly	2-3x standard deviation	Inter Laboratory round robin and/or Proficiency Test participation.	Analyst QA Manager	Same as Method/SOP QC Acceptance Limits
Reference sample	Daily for alignment, qual, and quant.	Must meet established acceptance criteria	Reanalyze is misclassification.	Analyst	Same as Method/SOP QC Acceptance Limits



QAPP Worksheet #28 – QC Samples Table (Air)

Matrix		Air			
Analytical Group		Asbestos			
Analytical Method/SOP Reference1		ISO 10312:2019/TEM.002			
QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action?	Project- Specific Measurement Performance Criteria
Method Blank	5% of submitted samples	1 structure	Determine the source of the contamination.  Clean equipment; prepare and analyze new blank.	Analyst	Same as Method/SOP QC acceptance limits
Field blank	10% of submitted samples	1 structure	Determine the source of the contamination.  Clean equipment; prepare and analyze new blank.	Analyst	Same as Method/SOP QC acceptance limits
Intra-analyst reanalysis	2% of samples analyzed per day	<5structures $\pm$ 1s; 5-20structures $\pm$ 2s; >20structures $\pm$ 3s or 3StDev	Reanalyze the sample. Second analyst performs another reanalysis.	Analyst QA Manager	Same as Method/SOP QC acceptance limits
Inter-analyst Quality assurance	7% of sample analyzed per day	<5structures $\pm$ 1s; 5-20structures $\pm$ 2s; >20structures $\pm$ 3s or 3StDev	Reanalyze the sample. Second analyst performs another reanalysis.	Analyst QA Manager	Same as Method/SOP QC acceptance limits
Inter-laboratory Quality assurance	Quarterly	2x standard deviation	Inter Laboratory Verification – Round Robin or Proficiency Test samples	Analyst QA Manager	Same as Method/SOP QC acceptance limits
Reference sample	EDS Calibrations See Table WS24	Must meet established acceptance criteria	Reanalyze after service call and within acceptable limits	Analyst	Same as Method/SOP QC acceptance limits

## QAPP Worksheet #24 – Analytical Instrument Calibration

Instrument <sup>1</sup>	Calibration Item	Calibration Range	Frequency	Acceptance Criteria <sup>2</sup>	Corrective Action <sup>3</sup>	Title/position responsible for CA	Applicable SOP for calibration
TEM I	Magnification Scale	0-40,000x	Annually	10%	Service Call	Quality Manager	TEM.002
TEM I	Working Magnification	20,000x	Quarterly	10%	Service Call	Quality Manager	TEM.002
TEM I	Camera Constant (SAED)	mm-nm	Monthly	10%	Service Call	Quality Manager	TEM.002
TEM I	Beam Dose (SAED)	Seconds	Monthly	30-60	Service Call	Quality Manager	TEM.002
TEM I	Beam Spot Size	250nm	Monthly	15%	Service Call	Quality Manager	TEM.002
EDS I	K Factors	1Kev - 10Kev	Annually	Sliding energy scale	Service Call	Quality Manager	TEM.002
EDS I	Energy Calibration Check	1KeV - 10KeV	Weekly	Al Ka, Cu Ka	Service Call	Quality Manager	TEM.002
EDS I	Resolution	Mn Ka	Monthly	75KeV FWHM	Service Call	Quality Manager	TEM.002
EDS I	Sensitivity	Na Ka	Monthly	3x SD	Service Call	Quality Manager	TEM.002
PLM	Refractive Index Oil	1.550-1.700	Receipt of new batch & quarterly	0.004	Reject Product	Quality Manager	PLM.007
PLM	Alignment	stage objectives optic axis polarizers	Daily check	RI colors and Ext Angle of SRM	Service Call	Analyst	PLM.007
Analytical Balance	Mass	NIST Class S-1 weights Troemner Certification	Daily AutoCal prior to use	0.002 g	Monthly checks with weights. Sartorius Certification.	Analyst/Quality Manager	PLM.007
Muffle Furnace	Temperature	485oC	Monthly	5% range	Service Call	Quality Manager	PLM.007
NIST Traceable Digital Thermometers	Temperature	-1 - 101oC	Daily check	+/- 1oC	Replacement	Quality Manager	PLM.007
Grid Opening Calibrations	Area	0.112-0.118mm	Receipt of batch	0.0130-0.0134mm <sup>2</sup>	Revise calculations	Analyst	TEM
Low Temperature Asher (Plasma)	Gravimetry Loss % over time setting	5-15%	Monthly	5-15%	Adjust / recalibrate	Analyst	TEM

QC Bag Date:

6/12/2020

## IATL: Daily QAQC Worksheet

Analyst:

Will Riffe

QC Review:

J. L. S. 25-20

Date:

8/25/2020

Notes: 1) (PC) Point Count via ELAP 198.1, record asbestos points (AP), non-empty points (NE), and slide mounts. See chart and PC Data Calc.,  
 2) Provide at least one optical property for non-asbestos fibers, 3) Use RI Values and Temp (SC Su'96), 4) Report clear observations on layered materials, including  
 SR/JC/Comp, FT/M, absent layers, insufficient layers, and other valuable descriptions

QC Notes: QC Reanalyses resulting in R-values > 1.0 must be resolved by the Lab Director. Tertiary Analysis is assigned by the Lab Director, QAC, or designee.

Code	Client # IATL#	Est Str %	Quantity (VAE%) Asbestos Type	Point Count Data	Non-Asbestos Fibers & %	NFM %	Gross Sample Appearance			<sup>2</sup> Optical Characteristics						<sup>3</sup> CSDS Data		
							Layers Homog	Color	Material Type	R.I Oil	Morph	Pleo	BiRef	+ Elong	Ex <sup>o</sup>	L	I	QC
SRM CRM	M1 2018 #4	Ø	PC ND	— 75678	—	100	Y	T	FT	1.550	—	—	—	—	—	—	—	AOR CA OK
Intra 1	7050011	Ø	PC ND	— Q5678	—	100	Y	BL GI	GA	1.550	—	—	—	—	—	—	—	AOR CA OK
Intra 2	7050010	Ø	PC ND	— Q5678	C: 40	60	Y	DK G	GA	1.550	—	—	—	—	U	—	—	AOR CA OK
Inter 1	7020394	Ø	PC ND	— Q5678	C: 2	98	Y	BL	T	1.550	—	—	—	—	U	—	—	AOR CA OK
Inter 2	7020398	Ø	PC ND	— Q5678	—	100	Y	T	FO	1.550	—	—	—	—	—	—	—	AOR CA OK
Inter 3	7020408	Ø	PC ND	— Q5678	—	100	Y	BL	covering material	1.550	—	—	—	—	—	—	—	AOR CA OK
Inter 4	—	Ø	PC ND	— Q5678	—	100	Y	T	healant	1.550	—	—	—	—	—	—	—	AOR CA OK
Inter 5	7020401	Ø	PC ND	— Q5678	—	100	Y	T	covering material	1.550	—	—	—	—	—	—	—	AOR CA OK
Inter 6	7020404	20	PC VAE Chrys: 20	— Q5678	—	80	Y	G	CP	1.550	W	N	L	+	Ø	1.544	1.556	AOR CA OK
Inter 7	—	—	PC	— 45678	—	—	—	—	—	—	—	—	—	—	—	—	—	AOR CA OK

**Location :**

Model : BX-41TF

PLM IV, Station 9

Serial Number: 0G07736

[illegible]

<sup>1</sup> Alignment procedures detailed in Section 3.4 of PLM SOP.

## 2 Field Iris Diaphragm & Substage Condenser System.

4 Fiberglass standard is to be analyzed every 20 samples. The detection of asbestos at a concentration of 0.1 mg/m<sup>3</sup> is required.

4 Fiberglass standard is to be analyzed every 20 samples. The detection of asbestos at a concentration exceeding 0.1% will require an investigation to detect and remove the source of the asbestos contamination.

QA/QC Review:

PLM.Calibrations.001

Revision Date: 7/22/2019





International Asbestos  
Testing Laboratories

# PLM Microscope Log

Model : BH2

Serial Number: BHS 227556

Location :

PLM III, Station 7

## Calibration Procedures

## Contamination Control

Date	Analyst	Kohler Illum.	Alignment <sup>1</sup>				HEPA hood (cfm)	RI Oil Std	RI Oil CSDS	Temp. °C	Tools	ELAP Fibergls Std <sup>4</sup>	RI Oil	Surfaces	Slides	In-House Air Monitoring	Maint. (see back)
			Stage	Diaph. / Condnsr. <sup>2</sup>	Objective	Polarizer <sup>3</sup>											
5-20-20	TL	✓	✓	✓	—	✓	136	1.550	1.547 1.556	21.4	✓	✓	✓	✓	✓		
6-7-20	LSP	✓	✓	✓	—	✓	115	1.550	1.547 1.557	21.5	✓	✓	✓	✓	✓		
6-8-20	LSP	✓	✓	✓	—	✓	110	1.550	1.548 1.557	22.1	✓	✓	✓	✓	✓		
6-9-20	LSP	✓	✓	✓	—	✓	135	1.605	1.613 1.631	23.2	✓	✓	✓	✓	✓		
6-10-20	LSP	✓	✓	✓	—	✓	132	1.680	1.677 1.698	24.0	✓	✓	✓	✓	✓		
6-13-20	LSP	✓	✓	✓	—	✓	136	1.680	1.640 1.698	22.6	✓	✓	✓	✓	✓		
6-14-20	LSP	✓	✓	✓	—	✓	133	1.680	1.677 1.678	23.1	✓	✓	✓	✓	✓		
6-15-20	LSP	✓	✓	✓	—	✓	130	1.680	1.549 1.678	23.8	✓	✓	✓	✓	✓		
6-16-20	LSP	✓	✓	✓	—	✓	135	1.550	1.548 1.556	23.1	✓	✓	✓	✓	✓		
6-17-20	LSP	✓	✓	✓	—	✓	133	1.550	1.548 1.558	22.8	✓	✓	✓	✓	✓		
6-21-20	LSP	✓	✓	✓	—	✓	128	1.550	1.648 1.553	22.9	✓	✓	✓	✓	✓		
6-22-20	LSP	✓	✓	✓	—	✓	130	1.680	1.679 1.698	23.4	✓	✓	✓	✓	✓		
6-23-20	LSP	✓	✓	✓	—	✓	133	1.550	1.548 1.533	22.1	✓	✓	✓	✓	✓		
6-27-20	LSP	✓	✓	✓	—	✓	129	1.550	1.548 1.557	22.9	✓	✓	✓	✓	✓		
6-28-20	LSP	✓	✓	✓	—	✓	130	1.550	1.550 1.555	22.8	✓	✓	✓	✓	✓		

1 Alignment procedures detailed in Section 3.4 of PLM SOP.

2 Field Iris Diaphragm & Substage Condenser System.

3 Polarizer and Analyzer oriented at 90° to one another. Coincidence of cross hairs with the privileged directions of polarizer and analyzer checked using anthophyllite standard.

4 Fiberglass standard is to be analyzed every 20 samples. The detection of asbestos at a concentration exceeding 0.1% will require an investigation to detect and remove the source of the asbestos contamination.

QA/QC Review:

PLM.Calibrations.001

NEW BATTERY 6-8-20

Revision Date: 4/20/2019

Location :

Model : BX40

PLM IV, Station 11

Serial Number: 6F10563

### Calibration Procedures

### Contamination Control

Calibration Procedures											Contamination Control						
Date	Analyst	Kohler Illum.	Alignment <sup>1</sup>				HEPA hood (cfm)	RI Oil Std	RI Oil CSDS	Temp. °C	Tools	ELAP Fibergls Std <sup>4</sup>	RI Oil	Surfaces	Slides	In-House Air Monitoring	Maint. (see back)
			Stage	Diaph. / Condnsr. <sup>2</sup>	Objective	Polarizer <sup>3</sup>											
5/28/20	SL	—	✓	✓	✓	✓	125	1.550	1.550 ± 1.555	23.6	✓	✓	✓	✓	✓		
5/29/20	SL	—	✓	✓	✓	✓	128	1.550	1.550 ± 1.555	23.8	✓	✓	✓	✓	✓		
6/1/20	SL	—	✓	✓	✓	✓	125	1.550	1.550 ± 1.555	22.1	✓	✓	✓	✓	✓		
6/3/20	SL	—	✓	✓	✓	✓	133	1.550	1.550 ± 1.560	23.4	✓	✓	✓	✓	✓		
6/4/20	SL	—	✓	✓	✓	✓	135	1.550	1.555 ± 1.558	23.2	✓	✓	✓	✓	✓		
6/10/20	SL	—	✓	✓	✓	✓	128	1.550	1.550 ± 1.555	23.4	✓	✓	✓	✓	✓		
6/14/20	SL	—	✓	✓	✓	✓	135	1.550	1.550 ± 1.555	23.1	✓	✓	✓	✓	✓		
6/17/20	SL	—	✓	✓	✓	✓	126	1.550	1.550 ± 1.555	23.6	✓	✓	✓	✓	✓		
6/18/20	SL	—	✓	✓	✓	✓	119	1.550	1.550 ± 1.555	23.4	✓	✓	✓	✓	✓		
6/19/20	SL	—	✓	✓	✓	✓	130	1.550	1.550 ± 1.557	23.6	✓	✓	✓	✓	✓		
6/22/20	SL	—	✓	✓	✓	✓	130	1.550	1.550 ± 1.555	23.8	✓	✓	✓	✓	✓		
6/23/20	SL	—	✓	✓	✓	✓	133	1.550	1.550 ± 1.560	23.5	✓	✓	✓	✓	✓		
6/24/20	SL	—	✓	✓	✓	✓	130	1.550	1.550 ± 1.558	23.4	✓	✓	✓	✓	✓		
6/27/20	SL	—	✓	✓	✓	✓	131	1.550	1.550 ± 1.555	23.6	✓	✓	✓	✓	✓		
6/28/20	SL	—	✓	✓	✓	✓	123	1.550	1.550 ± 1.557	23.5	✓	✓	✓	✓	✓		

1 Alignment procedures detailed in Section 3.4 of PLM SOP.

2 Field Use Only

1 Alignment procedures detailed in Section 3.4 of PLM SOP.

2 Field Iris Diaphragm & Substage Condenser System.

3 Polarizer and Analyzer oriented at 90° to one another. Coincidence of cross hairs with the privileged directions of polarizer and analyzer checked using anthophyllite standard.

4 Fiberglass standard is to be analyzed every 20 samples. The detection of asbestos at a concentration exceeding 0.1% will require an investigation to detect and remove the source of the asbestos contamination.

VQC Review:

Calibrations.001

Revision Date: 7/22/2019

### Utilizing Bloss, Shu-Chun-Su, and 589 nm Filter

055.1

[illegible]

R.I. Oil  
1.605

[illegible]



R.I.Oil  
680

[illegible]

QC Bag Date: 6-16-20

## IATL: Daily QAQC Worksheet

Analyst: 2SPQC Review: Phone 6-16-20Date: 6-16-20

Notes: 1) (PC) Point Count via ELAP 198.1, record asbestos points (AP), non-empty points (NE), and slide mounts. See chart and PC Data Calc.,  
 2) Provide at least one optical property for non-asbestos fibers, 3) Use RI Values and Temp (SC Su'96), 4) Report clear observations on layered materials, including  
 SR/JC/Comp, FT/M, absent layers, insufficient layers, and other valuable descriptions

QC Notes: QC Reanalyses resulting in R-values &gt; 1.0 must be resolved by the Lab Director, QAC, or designee.

Code	Client # IATL#	Est Str %	Quantity (VAE%) Asbestos Type	1 Point Count Data	Non-Asbestos Fibers & %	NFM %	Gross Sample Appearance			2 Optical Characteristics						3 CSDS Data		
							Layers Homog	Color	Material Type	RI Oil	Morph	Pleo	BiRef	+Elon	Ex <sup>0</sup>	⊥		QC
SRM CRM	702017-1	10	PC City 10	1 45678	Asbestos	10	1	BR W	I	1.60	K	N	C	+	1	1.60	1.11	AOR CA OK
Intra 1	9 7020802		PC NA	1 45678	—	100	1	O	Folm	1.60								AOR CA OK
Intra 2	11 7020804		PC City 8.2	4/49 45678	—	91.8	1	G	I	1.60	K	N	C	+	1	1.60	1.11	AOR CA OK
Inter 1	2 7019895		PC NA	1 45678	City 12	88	1	W BA	DW	1.60					✓			AOR CA OK
Inter 2	— —		PC NA	1 45678	—	100	1	W	JC	1.60								AOR CA OK
Inter 3	— —		PC NA	1 45678	City 100	—	1	W	Thy 100	1.60					✓			AOR CA OK
Inter 4	31 7019945		PC NA	1 45678	City 25	75	1	R BC	SH	1.60					✓			AOR CA OK
Inter 5	33 7019945		PC NA	1 45678	City 30	70	1	R BC	SH	1.60					✓			AOR CA OK
Inter 6	1 7019894		PC NA	1 45678	—	100	1	BC	M	1.60								AOR CA OK
Inter 7	3 7019896		PC NA	1 45678	City 12	88	1	W BA	DW	1.60					✓			AOR CA OK

QC Bag Date: 6-16-20

IATL: Daily QAQC Worksheet

Analyst: LSP

QC Review: John 6/16/20

Date: 6-16-20

Notes: 1) (PC) Point Count via ELAP 198.1, record asbestos points (AP), non-empty points (NE), and slide mounts. See chart and PC Data Calc.,  
2) Provide at least one optical property for non-asbestos fibers, 3) Use RI Values and Temp (SC Su'96), 4) Report clear observations on layered materials, including SR/JC/Comp, FT/M, absent layers, insufficient layers, and other valuable descriptions

QC Notes: QC Reanalyses resulting in R-values > 1.0 must be resolved by the Lab Director. Tertiary Analysis is assigned by the Lab Director, QAC, or designee.

This report is prepared by the Lab Director. Tertiary Analysis is assigned by the Lab Director, QAC, or designee.																		
Code	Client #	Est Str %	Quantity (VAE%) Asbestos Type	Point Count Data	Non-Asbestos Fibers & %	NFM %	Gross Sample Appearance			Optical Characteristics						CSDS Data		
	IATL#						Layers Homog	Color	Material Type	R.I Oil	Morph	Pico	BiRef	+ Elong	Ex <sup>o</sup>	1	11	QC
SRM CRM	3 7015896		PC ND	1 45678	—	100	1	W	JC	1.66								AOR CA OK
nter 1	<u>4</u>		PC ND	1 45678	Croc 100	~	1	W	Tape	1.66							✓	AOR CA OK
nter 2	-----			45678			1			1								AOR CA OK
nter 1	34 7020426		PC ND	1 45678	—	100	1	BW	NF	1.66								AOR CA OK
nter 2	31 7020423	10	PC CHRY 12	1 45678	—	88	1	G	Tape	1.66	K	~	L	4	K	1.66	1.65	AOR CA OK
nter 3	21 7020413		PC ND	1 45678	—	100	1	Y	NF	1.66								AOR CA OK
nter 4	39 7020431	20	PC CROC 5-1 CHRY 20	1 45678	—	749	1	G	CR	1.66	5	Y	L	—	"	1.66	1.695	AOR CA OK
nter 5 JCL	40 7020440		PC ND	1 45678	FG 1	100	1	W	DA	1.66					I			AOR CA OK
nter 6	-----		PC	1 45678			1											AOR CA OK
nter 7	-----		PC	1 45678			1											AOR CA OK



2ND HALF, 2019  
ROUND ROBIN RESULTS - PLM

		RRB19 2-1 CHRY	RRB19 2-2 AMOSITE	RRB19 2-3 CROC/ CHRY	RRB19 2-4 ND
IATL					
	LSP	3.6	75.0	6.1 20.0	ND
	ZS	15.0	15.0	4.0 8.0	ND
	BH	10.0	60.0	10.0 10.0	ND
	SL	10.0	10.0	2.7 10.0	ND
	MS	4.8	20.0	10.0 10.0	ND
	RC	6.2	15.0	5.0 15.0	ND
	ES	5.8	20.0	7.8 4.3 AM	ND
AALI					
	DAR	5.0	20.0	4.0 8.0	ND
DCMSL					
	RS	9.0	60.0	4.0 6.0	ND
	JS	9.0	65.0	4.0 6.0	ND
	JB	5.0	60.0	3.0 5.0	ND
	AS	12.0	56.0	4.0 8.0	ND
ND - NONE DETECTED					
MEAN		7.58	38.18	7.68	0.00
STD DEV		3.20	24.05	4.39	0.00
C.V.		0.00	0.63	0.57	0.00
+2 STD DEV		13.99	86.29	16.46	0.00
-2 STD DEV		1.18	-9.92	-1.10	0.00
+3 STD DEV		17.19	110.34	20.85	0.00
-3 STD DEV		-2.02	-33.98	-5.49	0.00



**NVLAP Bulk Asbestos Proficiency Test  
M12020**

Individual Laboratory Results

June 30, 2020

**NVLAP Lab Code 101165**

International Asbestos Testing Labs  
9000 Commerce Parkway  
Suite B  
Mt. Laurel, NJ 08054  
United States

**PROFICIENCY TEST PENALTY POINTS**

Sample 1 .....	40
Sample 2 .....	0
Sample 3 .....	0
Sample 4 .....	0
<b>TOTAL POINTS:</b> .....	<b>40</b>

Failure = 150 or more total points

Prepared by RTI International  
for  
NIST's National Voluntary Laboratory Accreditation Program  
For Bulk Asbestos Analysis by PLM

# NVLAP Bulk Asbestos Proficiency Test

M12020

Individual Laboratory Results

June 30, 2020

NVLAP Lab Code 101165

## Sample 1 – Type 1

Criteria	Reported by Laboratory	Mean Reference Values	Acceptable Answers	Assigned Points
Asbestos Type (150 pts./type > 0.1 %, 75 pts./type if 0.1 %)	AMOS	Amosite	Amosite	
Reporting Additional Asbestos Type (150 pts. if >0.1 %, 75 pts. if 0.1 %)			None	
Mean % Asbestos (50 pts.)	8.5	9.4 %	4.0 % to 14.0 %	
Average Refractive Index (40 pts. each index, 10 pts. if $\gamma \leq \alpha$ )	$\alpha = 1.676$ $\gamma = 1.695$	$\alpha = 1.679$ $\gamma = 1.698$	$\alpha$ : 1.674 to 1.685 $\gamma$ : 1.691 to 1.705	
Birefringence (10 pts.)	M	Moderate	Low or Moderate *	
Pleochroism (10 pts.)	N	No	No	
Extinction (10 pts.)	P	Parallel	Parallel	
Sign of Elongation (10 pts.)	P	Positive	Positive	
Color (10 pts.)	CL	Colorless	Colorless, Brown, or Other	

\* Birefringence results that are correctly calculated based on participant refractive index values will not receive penalty points even if they differ from the reference value. Beginning in round M12019, reported birefringence results that are inconsistent with the reported refractive index values receive penalty points.

# NVLAP Bulk Asbestos Proficiency Test

**M12020**

Individual Laboratory Results

June 30, 2020

**NVLAP Lab Code 101165**

## Sample 1 – Type 2

Criteria	Reported by Laboratory	Mean Reference Values	Acceptable Answers	Assigned Points
Asbestos Type (150 pts./type > 0.1 %, 75 pts./type if 0.1 %)	CHRY	Chrysotile	Chrysotile	
Reporting Additional Asbestos Type (150 pts. if >0.1 %, 75 pts. if 0.1 %)			None	
Mean % Asbestos (50 pts.)	5	4.9 %	0.1 % to 10.0 %	
Average Refractive Index (40 pts. each index, 10 pts. If $\gamma \leq \alpha$ )	$\alpha = 1.544$ $\gamma = 1.552$	$\alpha = 1.550$ $\gamma = 1.555$	$\alpha$ : 1.545 to 1.554 $\gamma$ : 1.550 to 1.561	40
Birefringence (10 pts.)	L	Low	Low or Moderate *	
Pleochroism (10 pts.)	N	No	No	
Extinction (10 pts.)	P	Parallel	Parallel	
Sign of Elongation (10 pts.)	P	Positive	Positive	
Color (10 pts.)	CL	Colorless	Colorless	

\* Birefringence results that are correctly calculated based on participant refractive index values will not receive penalty points even if they differ from the reference value. Beginning in round M12019, reported birefringence results that are inconsistent with the reported refractive index values receive penalty points.

**Total Points Assigned for Sample 1: 40**

## NVLAP Bulk Asbestos Proficiency Test

**M12020**

Individual Laboratory Results

June 30, 2020

**NVLAP Lab Code 101165**

### Sample 2

Criteria	Reported by Laboratory	Mean Reference Values	Acceptable Answers	Assigned Points
Asbestos Type (150 pts./type > 0.1 %, 75 pts./type if 0.1 %)	NONE	None	None	
Reporting Additional Asbestos Type (150 pts. if >0.1 %, 75 pts. if 0.1 %)			None	

Total Points Assigned for Sample 2: 0



# NVLAP Bulk Asbestos Proficiency Test

M12020

Individual Laboratory Results

June 30, 2020

NVLAP Lab Code 101165

## Sample 3 – Type 1

Criteria	Reported by Laboratory	Mean Reference Values	Acceptable Answers	Assigned Points
Asbestos Type (150 pts./type > 0.1 %, 75 pts./type if 0.1 %)	CHRY	Chrysotile	Chrysotile	
Reporting Additional Asbestos Type (150 pts. if >0.1 %, 75 pts. if 0.1 %)			None	
Mean % Asbestos (50 pts.)	5	4.5 %	0.1 % to 9 %	
Average Refractive Index (40 pts. each index, 10 pts. If $\gamma \leq \alpha$ )	$\alpha = 1.545$ $\gamma = 1.552$	$\alpha = 1.549$ $\gamma = 1.555$	$\alpha$ : 1.545 to 1.554 $\gamma$ : 1.549 to 1.562	
Birefringence (10 pts.)	L	Low	Low or Moderate *	
Pleochroism (10 pts.)	N	No	No	
Extinction (10 pts.)	P	Parallel	Parallel	
Sign of Elongation (10 pts.)	P	Positive	Positive	
Color (10 pts.)	CL	Colorless	Colorless	

\* Birefringence results that are correctly calculated based on participant refractive index values will not receive penalty points even if they differ from the reference value. Beginning in round M12019, reported birefringence results that are inconsistent with the refractive index values receive penalty points.

## NVLAP Bulk Asbestos Proficiency Test

**M12020**

Individual Laboratory Results

June 30, 2020

**NVLAP Lab Code 101165**

### Sample 3 – Type 2

Criteria	Reported by Laboratory	Mean Reference Values	Acceptable Answers	Assigned Points
Asbestos Type (Actinolite inhomogeneously distributed)		Actinolite ** or None	Actinolite, Tremolite, or None	
Mean % Asbestos (50 pts.)		0.1 %	0.0 % to 1.0 %	

*\*\*Actinolite was not confirmed to be present in every sample. Laboratories that reported actinolite or tremolite were only scored on the quantitation. Optical properties of actinolite were not scored for Sample 3.*

Total Points Assigned for Sample 3: 0

# NVLAP Bulk Asbestos Proficiency Test

**M12020**

Individual Laboratory Results

June 30, 2020

**NVLAP Lab Code 101165**

## Sample 4

Criteria	Reported by Laboratory	Mean Reference Values	Acceptable Answers	Assigned Points
Asbestos Type (150 pts./type > 0.1 %, 75 pts./type if 0.1 %)	CHRY	Chrysotile	Chrysotile	
Reporting Additional Asbestos Type (150 pts. if >0.1 %, 75 pts. if 0.1 %)			None	
Mean % Asbestos (50 pts.)	15	10.2 %	2.0 % to 19.0 %	
Average Refractive Index (40 pts. each index, 10 pts. if $\gamma \leq \alpha$ )	$\alpha = 1.545$ $\gamma = 1.552$	$\alpha = 1.549$ $\gamma = 1.555$	$\alpha$ : 1.545 to 1.554 $\gamma$ : 1.549 to 1.561	
Birefringence (10 pts.)	L	Low	Low or Moderate *	
Pleochroism (10 pts.)	N	No	No	
Extinction (10 pts.)	P	Parallel	Parallel	
Sign of Elongation (10 pts.)	P	Positive	Positive	
Color (10 pts.)	CL	Colorless	Colorless	

*\* Birefringence results that are correctly calculated based on participant refractive index values will not receive penalty points even if they differ from the reference value. Beginning in round M12019, reported birefringence results that are inconsistent with the reported refractive index values receive penalty points.*

**Total Points Assigned for Sample 4: 0**

## **Contacts**

**International Asbestos Testing Labs**

**NVLAP Lab Code 101165**

### **NVLAP AUTHORIZED CONTACT**

Frank Ehrenfeld  
9000 Commerce Parkway  
Suite B  
Mt. Laurel, NJ 08054  
United States

Email: [frankehrenfeld@iatl.com](mailto:frankehrenfeld@iatl.com)  
Phone: 856-231-9449

RTI cannot update the NVLAP Authorized Contact. To make changes, please contact NVLAP: [nvlap@nist.org](mailto:nvlap@nist.org). NVLAP will periodically provide RTI with the current information.

### **RTI SHIPPING CONTACT**

Frank Ehrenfeld  
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Mt. Laurel, NJ 08054  
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### **RTI BILLING CONTACT**

Christine Worsham  
9000 Commerce Parkway  
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United States

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Phone: 856-231-9449

Please update your shipping or billing contact information on RTI's NVLAP PLM website: <https://nvlap-plm.rti.org/>.

Thank you for participating in the NVLAP Bulk (PLM) Proficiency Testing Program.





International Asbestos  
Testing Laboratories

Location : **TEM I**

Date	Time	Initials	<sup>4</sup> EDS		Air QC Reanalyses				NOB QC Reanalyses		<sup>2</sup> Analysis Record						
			<sup>1</sup> Align.	Daily	Inter	Intra	Blanks	Verified	Inter	Intra	Client	N Y S C	Sample Count	IATL #		Method	<sup>3</sup> Micro
7/30/20	5:04 AM	CL	√	√	14	5	14	3			OHCS		6	70422212	70422217	AHERA	
					13	5	14	3			Air Inter Analyst QC		1	7040574	7040574	ISO	
					12	5	14	3			Air Inter Analyst QC		1	7040584	7040584	ISO	

*TEM Daily Log*

Serial Number: 542-47-3

Model : Hitachi 600 AB

[illegible]



International Asbestos  
Testing Laboratories

Location : TEM III

Must Read

Date	Time	Analyst	<sup>4</sup> EDS Daily		Air QC Reanalyses				NOB QC Reanalyses		<sup>2</sup> Analysis Record					
			<sup>1</sup> Align.		Inter	Intra	Blanks	Verified	Inter	Intra	Client	NYS Client	Sample Count	IATL #		Method
7/28/20	7:08 AM	MS	√								LOCKHEED MARTIN		1	7038940	7038940	198.4
											ENVIROTEST		1	7039791	7039791	100.2
							1				L&R		6	7040574	7040579	ISO
7/28/20	3:00 PM	JJ	√					2			VIVA		5	7041147	7041151	AHERA
					1	1		2			OHCS		6	7041237	7041242	AHERA
7/29/20	9:32 AM	MS	√				1	0			L&R		7	7040580	7040586	ISO
7/29/20	3:13 PM	JJ			1	1		2			RKE		5	7042207	7042211	AHERA
					2	1		2			SYNERTECH		10	7042218	7042227	AHERA
7/30/20	7:36 AM	MS	√				2	1			L&R		2	7040587	7040588	ISO
											Blanks - FB or LB (air) QC		2			
											Camera Constants SAED Gold Rings					
											L/Ap.(0.3 Objective) SRM 1867 -Amo.					
											L&R Replicates		2	7040575	7040585	QC

*TEM Daily Log*

Serial Number: EM18440033

Model : JEOL, JEM-1230

[illegible]





International Asbestos  
Testing Laboratories

Location : TEM III

Must Read

Date	Time	Analyst	<sup>4</sup> EDS Daily		Air QC Reanalyses				NOB QC Reanalyses		<sup>2</sup> Analysis Record					
			<sup>1</sup> Align.		Inter	Intra	Blanks	Verified	Inter	Intra	Client	NYS Client	Sample Count	IATL #		Method
8/4/20	7:56 AM	MS	√			1	1	1			L & R		9	7042315	7042323	ISO
8/4/20	3:19 PM	JJ	√		2	1	1	1			L & R		2	7044139	7044140	NIOSH
					2	1	2	1			OHCS		10	7045104	7045113	AHERA
8/5/20	2:51 PM	MS	√			1	1	1			L & R		2	7042324	7042325	ISO
8/5/20	3:32 PM	JJ	√		2	1	2	1			AREC		3	7045309	7045311	NIOSH
					2	1	1	1			Blanks - FB or LB (air) QC		1			NIOSH
					3	2	1	1			TTI		5	7045782	7045786	AHERA
					3	2	2	1			OHCS		10	7045799	7045808	AHERA
8/6/20	7:37 AM	MS	√			1	1	1			L & R		4	7042326	7042329	ISO
											L & R Replicates		2	7042315	7042326	QC
											Blanks - FB or LB (air) QC		2			
											Camera Constants SAED Gold Rings					
											L/Ap.(0.3 Objective) SRM 1867 -Amo.					
											Mag. Cal. 20k/10k (EMS 80055)					
											Spot Size (EMS 80055)					
											Beam Dose-NIST Chrysotile Std.					

*TEM Daily Log*

Serial Number: EM18440033

Model : JEOL, JEM-1230

[illegible]



International Asbestos  
Testing Laboratories

Location : TEM III

Must Read

Date	Time	Analyst	<sup>4</sup> EDS Daily		Air QC Reanalyses				NOB QC Reanalyses		<sup>2</sup> Analysis Record					
			<sup>1</sup> Align.		Inter	Intra	Blanks	Verified	Inter	Intra	Client	NYS Client	Sample Count	IATL #		Method
8/7/20	8:07 AM	MS	√			1		1			L & R		8	7045849	7045856	ISO
8/8/20	12:17 PM	MS	√			1		1			L & R		7	7045857	7045863	ISO
8/10/20	12:14 PM	JJ	√		5	3	3	1			EA GROUP		5	7046925	7046929	AHERA
					5	3	2	1			Blanks - FB or LB (air) QC		1			AHERA
											SGS		2	7043409	7043410	6480
											CREAM RIDGE		2	7042358	7042358	198.4
					5	3	2	1			EA GROUP		5	7046430	7046434	AHERA
					5	3	3	1			EA GROUP		5	7046443	7046447	AHERA
											SJW		1	7044141	7044141	100.2
					6	3	3	1			VIVA		5	7047215	7047219	AHERA
8/11/20	7:53 AM	MS	√								TEST AMERICA		2	7044698	7044699	100.2
											Camera Constants SAED Gold Rings					
											L/Ap.(0.3 Objective) SRM 1867 -Amo.					
						2		1			VILLA		5	7047261	7047265	AHERA
											Air Intra Analyst QC		1	7047262	7047262	
											Blanks - FB or LB (air) QC		2			



International Asbestos  
Testing Laboratories

Location : TEM III

Must Read

Date	Time	Analyst	<sup>4</sup> EDS		Air QC Reanalyses				NOB QC Reanalyses		<sup>2</sup> Analysis Record					
			<sup>1</sup> Align.	Daily	Inter	Intra	Blanks	Verified	Inter	Intra	Client	NYS Client	Sample Count	IATL #		Method
						1		1			MPS		2	7047332	7047333	AHERA
											L & R Replicates		2	7045849	7045859	QC



*TEM Daily Log*

Serial Number: EM18440033

Model : JEOL, JEM-1230

[illegible]

*TEM Daily Log*

Serial Number: EM18440033

Model : JEOL, JEM-1230

[illegible]



International Asbestos  
Testing Laboratories

Location : **TEM I**

Date	Time	Initials	<sup>4</sup> EDS		Air QC Reanalyses				NOB QC Reanalyses		<sup>2</sup> Analysis Record						
			Daily		Inter	Intra	Blanks	Verified	Inter	Intra	Client	N Y S C	Sample Count	IATL #		Method	<sup>3</sup> Micro
			<sup>1</sup> Align.	-													
8/13/20	4:53 AM	CL	√	√							MAYNARD MARKS		4	7046971	7046974	6480	
						2	4				Air Inter Analyst QC		2	7045850	7045860	ISO	

*TEM Daily Log*

Serial Number: 542-47-3

Model : Hitachi 600 AB

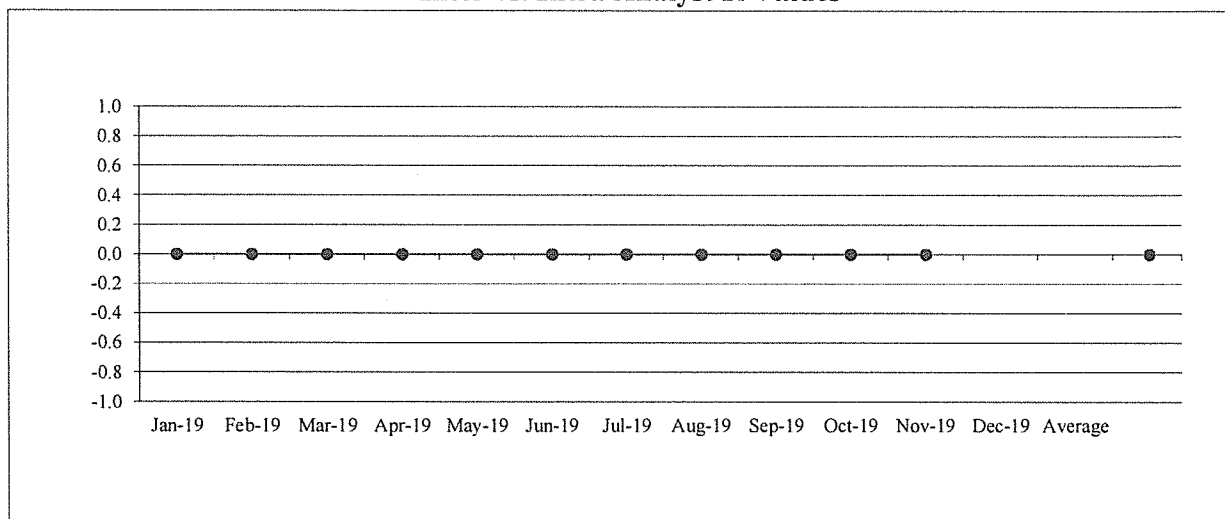
[illegible]

2019

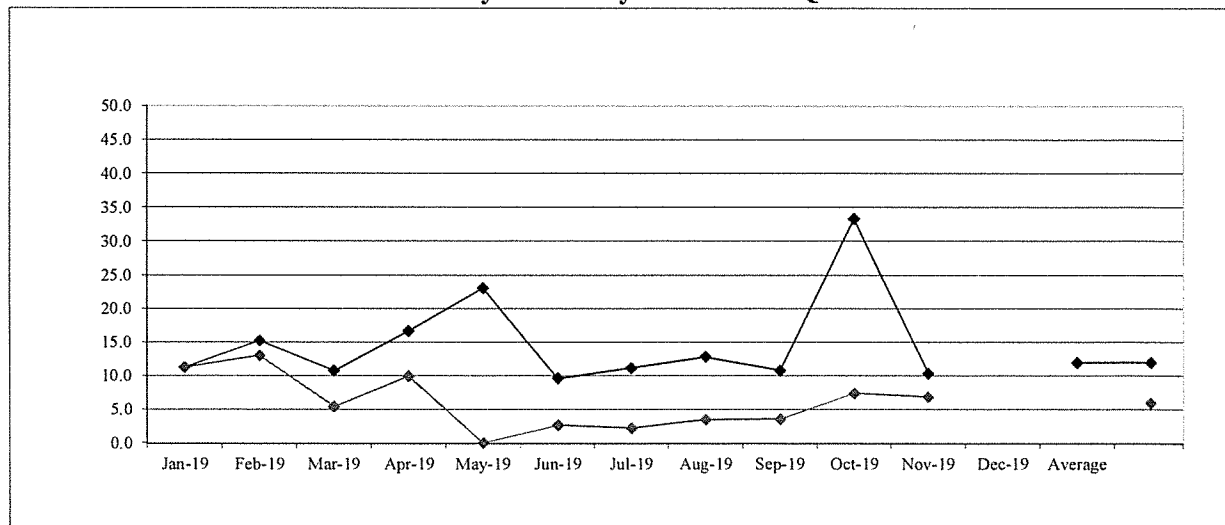
Annual QC Summary - M. Stewart

Month	Samples Analyzed	QC Analyzed	% Reanalysis	(Inter) Avg. R	(Intra) Avg. R	Other QC Analyzed	% Other QC	Total QC Analyzed	Total %QC
Jan-19	125	14	11.2	0.00	0.00	14	11.2	28	22.4
Feb-19	46	7	15.2	0.00	0.00	6	13.0	13	28.3
Mar-19	111	12	10.8	0.00	0.00	6	5.4	18	16.2
Apr-19	30	5	16.7	0.00	0.00	3	10.0	8	26.7
May-19	26	6	23.1	NA	NA	0	0.0	6	23.1
Jun-19	261	25	9.6	NA	NA	7	2.7	32	12.3
Jul-19	269	30	11.2	NA	NA	6	2.2	36	13.4
Aug-19	86	11	12.8	NA	NA	3	3.5	14	16.3
Sep-19	111	12	10.8	NA	NA	4	3.6	16	14.4
Oct-19	27	9	33.3	NA	NA	2	7.4	11	40.7
Nov-19	29	3	10.3	NA	NA	2	6.9	5	17.2
Dec-19									
<b>Total</b>	<b>1121</b>	<b>134</b>	<b>12.0</b>			<b>53</b>		<b>187</b>	<b>16.7</b>
<b>Average</b>	<b>102</b>	<b>12</b>	<b>12.0</b>	<b>0.00</b>	<b>0.00</b>	<b>5</b>	<b>6.0</b>	<b>17</b>	

Inter vs. Intra Analyst R Values



Analyst Reanalysis vs. Misc. QC





NVLAP TEM PROFICIENCY TEST 2019  
Individual Laboratory Report

Lab code: 101165  
International Asbestos Testing Labs  
Mt. Laurel, NJ  
United States

**LAB ERROR POINT SUMMARY**

Analysis of Four MCE Filters Error Points

Sample 1 .....	0
Sample 2 .....	0
Sample 3 .....	0
Sample 4 .....	0
Other .....	0

TOTAL ERROR POINTS: ..... 0

(Failure = 150 or more total error points)

NVLAP TEM PROFICIENCY TEST 2019  
Individual Laboratory Report

Lab code: 101165

**Sample 1 - Blank**

Asbestos Type	Structures Reported	Reported Concentration (Structs/mm <sup>2</sup> )	Calculated Concentration (Structs/mm <sup>2</sup> )	Error Points *
Chrysotile	0	0.00	0.00	0
Amosite	0	0.00	0.00	0
Crocidolite	0	0.00	0.00	0
Tremolite or Actinolite	0	0.00	0.00	0
Anthophyllite	0	0.00	0.00	0
<b>Total Reported Structures and Mean</b>	<b>0</b>	<b>0.00</b>	<b>0.00</b>	<b>0</b>
<b>Other Error Points (comments below)</b>				<b>0</b>
<b>Total Error Points</b>				<b>0</b>

Additional scoring and acceptance range details are listed in the TEM PT 2019 Summary Report.

**Comments:**

N/A

**Sample 2 - Chrysotile**

Asbestos Type	Structures Reported	Reported Concentration (Structs/mm <sup>2</sup> )	Calculated Concentration (Structs/mm <sup>2</sup> )	Error Points *
Chrysotile	109	633.72	633.72	0
Amosite	0	0.00	0.00	0
Crocidolite	0	0.00	0.00	0
Tremolite or Actinolite	0	0.00	0.00	0
Anthophyllite	0	0.00	0.00	0
<b>Total Reported Structures and Mean</b>	<b>109</b>	<b>633.72</b>	<b>633.72</b>	<b>0</b>
<b>Other Error Points (comments below)</b>				<b>0</b>
<b>Total Error Points</b>				<b>0</b>

The average concentration of chrysotile reported was 387.52 structures/mm<sup>2</sup>.

The calculated acceptance range was 18.00 to 811.46 structures/mm<sup>2</sup>.

The low and high warning zones were 104.90 and 670.15 structures/mm<sup>2</sup> respectively.

Additional scoring and acceptance range details are listed in the TEM PT 2019 Summary Report.

**Comments:**

N/A

NVLAP TEM PROFICIENCY TEST 2019  
Individual Laboratory Report

Lab code: 101165

**Sample 3 - Blank**

Asbestos Type	Structures Reported	Reported Concentration (Structs/mm <sup>2</sup> )	Calculated Concentration (Structs/mm <sup>2</sup> )	Error Points *
Chrysotile	0	0.00	0.00	0
Amosite	0	0.00	0.00	0
Crocidolite	0	0.00	0.00	0
Tremolite or Actinolite	0	0.00	0.00	0
Anthophyllite	0	0.00	0.00	0
<b>Total Reported Structures and Mean</b>	<b>0</b>	<b>0.00</b>	<b>0.00</b>	<b>0</b>
<b>Other Error Points (comments below)</b>				<b>0</b>
<b>Total Error Points</b>				<b>0</b>

Additional scoring and acceptance range details are listed in the TEM PT 2019 Summary Report.

**Comments:**

N/A

**Sample 4 - Crocidolite**

Asbestos Type	Structures Reported	Reported Concentration (Structs/mm <sup>2</sup> )	Calculated Concentration (Structs/mm <sup>2</sup> )	Error Points *
Chrysotile	0	0.00	0.00	0
Amosite	0	0.00	0.00	0
Crocidolite	10	58.14	58.14	0
Tremolite or Actinolite	0	0.00	0.00	0
Anthophyllite	0	0.00	0.00	0
<b>Total Reported Structures and Mean</b>	<b>10</b>	<b>58.14</b>	<b>58.14</b>	<b>0</b>
<b>Other Error Points (comments below)</b>				<b>0</b>
<b>Total Error Points</b>				<b>0</b>

The average concentration of crocidolite reported was 139.63 structures/mm<sup>2</sup>.

The calculated acceptance range was 18.00 to 290.84 structures/mm<sup>2</sup>.

The low and high warning zones were 38.82 and 240.44 structures/mm<sup>2</sup> respectively.

Additional scoring and acceptance range details are listed in the TEM PT 2019 Summary Report.

**Comments:**

N/A

**Other Error Points:**

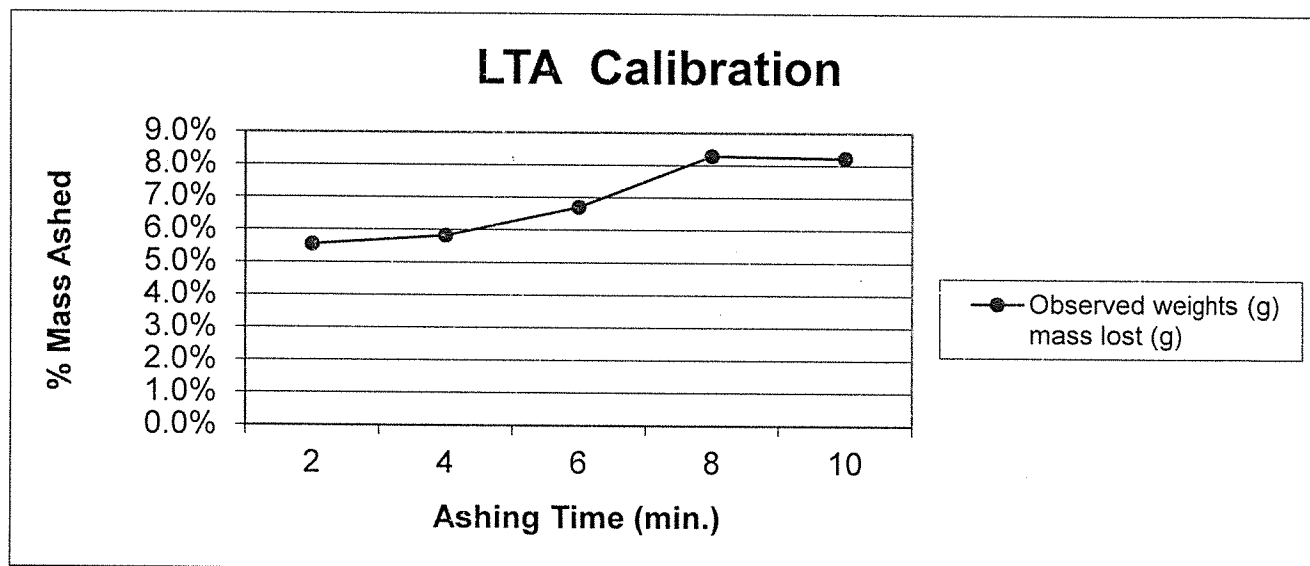
N/A

August-20

## Low Temperature Asher Calibration

PT7100 Biorad

Ashing Time (min)	Observed weights (g)					
	Slide	Slide & filter	Filter	*Ashed filter & slide	mass lost (g)	mass lost ( %)
2	4.6921	4.7408	0.0487	4.7381	0.0027	5.5%
4	4.4807	4.5323	0.0516	4.5293	0.0030	5.8%
6	4.7746	4.8239	0.0493	4.8206	0.0033	6.7%
8	4.8039	4.8510	0.0471	4.8471	0.0039	8.3%
10	4.5850	4.6349	0.0499	4.6308	0.0041	8.2%



\* See the "TD 48000" Furnace Calibration Log for details.

Comments:

Calibration Analyst: Benjamin Reich

Date: 4-Aug-20

Reviewer: \_\_\_\_\_

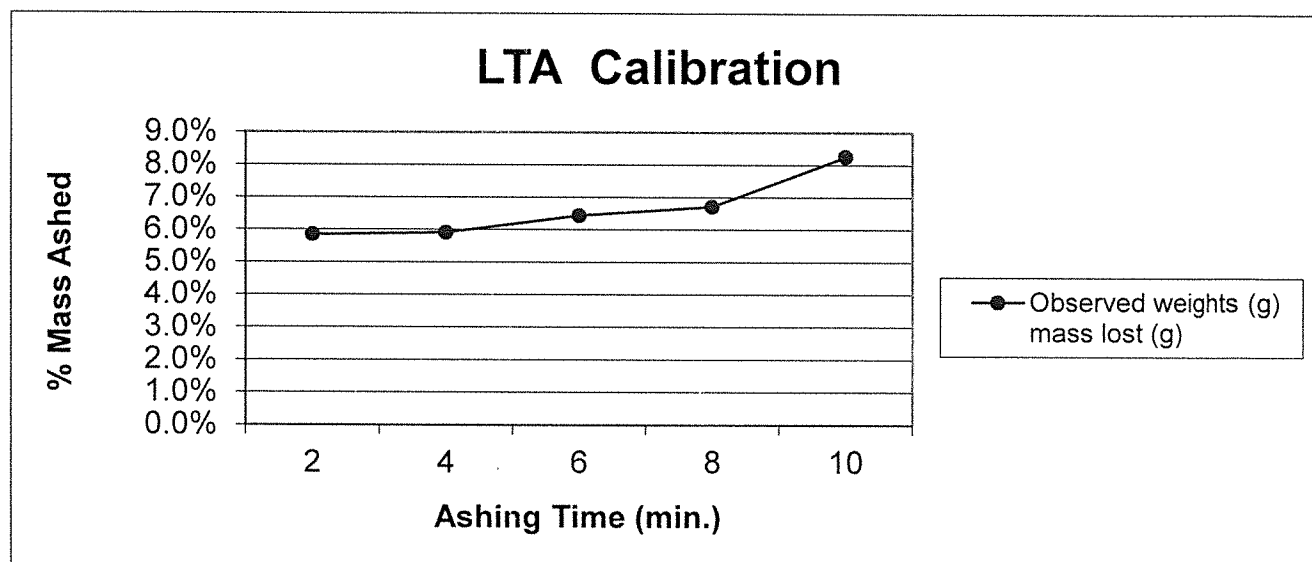
Date: \_\_\_\_\_

July-20

## Low Temperature Asher Calibration

PT7100 Biorad

Ashing Time (min)	Observed weights (g)					
	Slide	Slide & filter	Filter	*Ashed filter & slide	mass lost (g)	mass lost ( %)
2	4.7093	4.7555	0.0462	4.7528	0.0027	5.8%
4	4.9188	4.9679	0.0491	4.9650	0.0029	5.9%
6	4.8604	4.9117	0.0513	4.9084	0.0033	6.4%
8	4.8132	4.8609	0.0477	4.8577	0.0032	6.7%
10	4.5047	4.5532	0.0485	4.5492	0.0040	8.2%



\* See the "TD 48000" Furnace Calibration Log for details.

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Calibration Analyst: Benjamin Reich

Date: 8-Jul-20

Reviewer: \_\_\_\_\_

Date: \_\_\_\_\_



## TEM Finder Grid Calibration

All measurements are made using a calibrated Walton-Beckett graticule in an Olympus CH-2 CH2 light microscope at 400X magnification.  
All grids measured are Electron Microscopy Sciences Indexed 200 mesh copper grids.  
All grids measured in microns.

Date: 5/22/2020

Manufacturer: EMS  
Lot #: 200120

Opening #	Grid 1	Grid 2	Grid 3	Grid 4	Grid 5	Grid 6	Grid 7	Grid 8	Grid 9	Grid 10	Grid 11	Grid 12	Grid 13	Grid 14	Grid 15	Grid 16	Grid 17	Grid 18	Grid 19	Grid 20
1	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
2	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
3	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
4	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
5	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
6	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
7	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
8	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
9	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
10	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
11	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
12	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
13	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
14	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
15	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
16	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
17	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
18	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
19	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
20	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
Average grid area (mm <sup>2</sup> )	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013

Average grid area (mm<sup>2</sup>): 0.013  
2s: 0

Calibration Analyst: BR

Date 5/22/2020

Reviewer:

Date

## TEM Finder Grid Calibration

All measurements are made using a calibrated Walton-Beckett graticule in an Olympus CH-2 CH2 light microscope at 400X magnification.  
All grids measured are Electron Microscopy Sciences Indexed 200 mesh copper grids.  
All grids measured in microns.

Date: 8/10/2020

Manufacturer: EMS  
Lot #: 200618

Opening #	Grid 1	Grid 2	Grid 3	Grid 4	Grid 5	Grid 6	Grid 7	Grid 8	Grid 9	Grid 10	Grid 11	Grid 12	Grid 13	Grid 14	Grid 15	Grid 16	Grid 17	Grid 18	Grid 19	Grid 20
1	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
2	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
3	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
4	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
5	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
6	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
7	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
8	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
9	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
10	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
11	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
12	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
13	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
14	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
15	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
16	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
17	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
18	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
19	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
20	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
Average grid area (mm <sup>2</sup> )	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013

Average grid area (mm<sup>2</sup>): 0.013  
2s: 0

Calibration Analyst: BR

Date 8/10/2020

Reviewer:

Date

July-20

## EDS Calibration Al-Cu

TEM ID: H 600AB, 542-47-3

TEM: I

EDXA ID: EVEX, EDXA System

			Al	Cu
NYSDOH- ELAP	± 10eV	Average	1.486	8.045
NIST - NVLAP	± 20eV	Std Dev	0.0040	0.0032
		Min	1.482	8.040
		Max	1.492	8.052
		5% of Mean	0.0743	0.4022
		2 Std Dev.	0.0080	0.0064

Emboldened energy entries indicate values outside of ELAP requirements.

(Al / Cu calibration is required before proceeding)

Date:	Al (1.487keV)	Cu (8.047keV)	Al LCL	Al UCL	Cu LCL	Cu UCL
Average	1.486	8.045	1.477	1.497	8.037	8.057
7/1/20	1.488	8.042	1.477	1.497	8.037	8.057
7/3/20	1.489	8.040	1.477	1.497	8.037	8.057
7/7/20	1.482	8.044	1.477	1.497	8.037	8.057
7/9/20	1.483	8.046	1.477	1.497	8.037	8.057
7/10/20	1.482	8.044	1.477	1.497	8.037	8.057
7/11/20	1.482	8.044	1.477	1.497	8.037	8.057
7/14/20	1.490	8.044	1.477	1.497	8.037	8.057
7/15/20	1.482	8.044	1.477	1.497	8.037	8.057
7/16/20	1.482	8.052	1.477	1.497	8.037	8.057
7/17/20	1.490	8.044	1.477	1.497	8.037	8.057
7/18/20	1.482	8.044	1.477	1.497	8.037	8.057
7/21/20	1.490	8.044	1.477	1.497	8.037	8.057
7/22/20	1.490	8.044	1.477	1.497	8.037	8.057
7/23/20	1.490	8.041	1.477	1.497	8.037	8.057
7/25/20	1.482	8.046	1.477	1.497	8.037	8.057
7/28/20	1.482	8.042	1.477	1.497	8.037	8.057
7/29/20	1.492	8.049	1.477	1.497	8.037	8.057
7/30/20	1.483	8.044	1.477	1.497	8.037	8.057
7/31/20	1.490	8.052	1.477	1.497	8.037	8.057

## EDS Calibration Al-Cu

TEM: I

2 Std Dev.	0.0069	0.0085
------------	--------	--------

TEM.DailyAlCu.001  
Rev. Date: 1/10/18

2020

EDS Resolution

TEM ID: H 600AB, 542-47-3  
EDXA ID: Thermo, EDXA System  
Rate Const.: 1

TEM: I

Statistics and Limits based upon 730 Day historic data.

Average: 129  
Std Dev: 4.67  
5% of Mean: 6.43  
2 Std Dev.: 9.34

	Date:	Data:	A	B	C	D	Max	Half Max	Resolution KeV
1	28-Jan	Energy	5.82	5.83	5.94	5.95	5.90	5.90	
		Counts	898	1109	1210	910	2006	1003	122
2	29-Feb	Energy	5.81	5.82	5.94	5.95	5.90	5.90	
		Counts	995	1223	1251	888	2015	1008	136
3	13-Mar	Energy	5.80	5.81	5.94	5.95	5.90	5.90	
		Counts	900	1300	1204	926	2008	1004	145
4	18-Apr	Energy	5.81	5.82	5.93	5.94	5.88	5.90	
		Counts	4144	5224	5229	4361	8807	4404	127
5	22-May	Energy	5.81	5.82	5.94	5.95	5.88	5.90	
		Counts	2523	3031	2574	2028	5081	2541	130
6	30-Jun	Energy	5.81	5.82	5.93	5.94	5.90	5.90	
		Counts	872	1054	1122	952	2000	1000	120
7	22-Jul	Energy	5.81	5.82	5.93	5.94	5.90	5.90	
		Counts	815	1002	1153	967	2000	1000	118
8	20-Aug	Energy	5.81	5.82	5.94	5.95	5.90	5.90	
		Counts	821	1108	1159	903	2000	1000	130
9		Energy							
		Counts							
10		Energy							
		Counts							
11		Energy							
		Counts							
12		Energy							
		Counts							
13		Energy							
		Counts							

Average 129  
Std Dev. 8.8

Lower Control Limit 0 Upper Control Limit 0



2020

## Minimum Detection Limit Calculations

TEM ID: H 600AB, 542-47-3

TEM I

EDXA ID: Thermo, EDXA System

NIST Crocidolite Standard

Date	Na Peak Counts $n_{Na}$	Background Peak Counts				Average Background Counts $n_b$	Average Net Counts $n_{net} = n_{Na} - n_b$	Computed Na Peak Standard Deviation $\sigma_{net} = \sqrt{(2n_b + n_{net})}$	Peak Significance $n_{net} \geq 2\sigma_{net}$
		@0.840 keV	@0.910 keV	@1.170 keV	@2.280 keV				
1/28/20	329	61	222	46	27	89.0	240.0	20.4	TRUE
2/29/20	151	22	105	15	14	39.0	112.0	13.8	TRUE
3/26/20	103	15	19	13	12	14.8	88.3	10.9	TRUE
4/18/20	98	26	47	28	8	27.3	70.8	11.2	TRUE
5/22/20	902	118	286	218	134	189.0	713.0	33.0	TRUE
6/27/20	45	11	23	8	4	11.5	33.5	7.5	TRUE
7/29/20	237	37	94	47	15	48.3	188.8	16.9	TRUE
8/20/20	50	8	11	10	6	8.8	41.3	7.7	TRUE

Ca peak in Crocidolite standard: Peak shown to be insignificant.

Average	239.375	37.25	100.875	48.125	27.5	53.4	185.9	17.1	TRUE
---------	---------	-------	---------	--------	------	------	-------	------	------

Note:  $n_{net}$  cannot be calculated from a single spectrum but averages from multiple spectra show that  $n_{Na} - n_b \cong n_{net}$ . For calibration purposes, one can approximate  $n_{net} \cong n_{net}$ .

2020

## Beam Dose Calibration

TEM ID: JEOL, JEM-1230  
EDXA ID: Evex, EDX System

TEM: III

Date	Micrograph #	Exposure Time	SAEDP Observed					
1/16/20	BD0120	2	002,	004,	110,	130,	200,	220,
2/3/20	BD0220	2	002,	004,	110,	130,	200,	220,
3/19/20	BD0320	2	002,	004,	110,	130,	200,	220,
4/21/20	BD0420	2	002,	004,	110,	130,	200,	220,
5/7/20	BD0520	2	002,	004,	110,	130,	200,	220,
6/30/20	CC063020	2	002,	004,	110,	130,	200,	220,
7/8/20	BD0720	2	002,	004,	110,	130,	200,	220,
8/6/20	BD0820	2	002,	004,	110,	130,	200,	220,
September								
October								
November								
December								

Probe Setting: Fine  
Spot size 60  $\mu$ m  
Power 100 kV  
Diff. Mode Setting: 0.6 M

2020

Beam Spot Size

TEM ID: JEOL, JEM-1230  
EDXA ID: Evex, EDX System

TEM: III

Statistics and Limits based upon 730 Day historic data.

Average: 0.0816  
Std Dev: 0.00894  
5% of Mean: 0.00408  
2 Std Dev.: 0.0179

Date	Micrograph #	Magnification Setting	Spot (cm)	Sphere (cm)	Observed Size (µm)	Probe Size (µm)	Comments
Average					0.151		
1/16/20	SS0120	20000	0.195	0.254	0.192	0.020	
2/3/20	SS0220	20000	0.211	0.275	0.192	0.020	
3/19/20	SS0320	20000	0.153	0.256	0.149	0.020	
4/21/20	SS0420	20000	0.117	0.286	0.102	0.020	
5/7/20	SS0520	20000	0.111	0.244	0.114	0.020	
6/6/20	SS0620	20000	0.149	0.250	0.149	0.020	
7/8/20	SS0720	20000	0.160	0.260	0.154	0.020	
8/6/20	SS0820	20000	0.172	0.269	0.160	0.020	

Using Magnification Grating, 2160 lines/mm<sup>2</sup> with poly-spheres, 0.25 µm.

August-20

Camera Constant

TEM ID: JEOL, JEM-1230, EM18440033

TEM: III

EDXA ID: Evex, EDX System

Energy: 120 KeV

Statistics and Limits based upon 730 Day historic data.

**Inner Ring**

Average: 71.70  
Std Dev.: 1.61  
5% of Mean: 3.58  
2s: 3.21

Acceptable Range: 68.48 74.90941763

**Inner & Outer Rings**

Average: 72.02  
Std Dev.: 1.52  
5% of Mean: 3.60  
2s: 3.05

Acceptable Range: 68.97 75.066618

Date	Analyst	Micrograph	Ring #	D(mm)	R (mm)	d (A)	W (A)	L (mm)	CC
8/6/20	MS	<u>CC080620</u>	1- 0°	60	30	2.355	0.037	1909.46	70.65
			1- 45°	60	30	2.355	0.037	1909.46	70.65
			1- 90°	60	30	2.355	0.037	1909.46	70.65
			3	99	49.5	1.442	0.037	1929.16	71.38
			4	115.5	57.75	1.231	0.037	1921.36	71.09
8/11/20	MS	<u>CC081120</u>	1- 0°	60	30	2.355	0.037	1909.46	70.65
			1- 45°	59.5	29.75	2.355	0.037	1893.55	70.06
			1- 90°	60.5	30.25	2.355	0.037	1925.37	71.24
			3	100.0	50	1.442	0.037	1948.65	72.10
			4	117	58.5	1.231	0.037	1946.31	72.01
8/22/20	MS	<u>CC082220</u>	1- 0°	63	31.5	2.355	0.037	2004.93	74.18
			1- 45°	62.5	31.25	2.355	0.037	1989.02	73.59
			1- 90°	62.5	31.25	2.355	0.037	1989.02	73.59
			3	103	51.5	1.442	0.037	2007.11	74.26
			4	120.5	60.25	1.231	0.037	2004.53	74.17
			1- 0°			2.355	0.037		
			1- 45°			2.355	0.037		
			1- 90°			2.355	0.037		
			3			1.442	0.037		
			4			1.231	0.037		
			1- 0°			2.355	0.037		
			1- 45°			2.355	0.037		
			1- 90°			2.355	0.037		
			3			1.442	0.037		
			4			1.231	0.037		

Average: 1913.41 72.02  
SD 1.52

July-20

Camera Constant

TEM ID: JEOL, JEM-1230, EM18440033

TEM: III

EDXA ID: Evex, EDX System

Energy: 120 KeV

Statistics and Limits based upon 730 Day historic data.

## Inner Ring

Average: 71.04  
Std Dev.: 0.58  
5% of Mean: 3.55  
2s: 1.16

Acceptable Range: 69.88 72.20202185

## Inner & Outer Rings

Average: 71.11  
Std Dev.: 0.54  
5% of Mean: 3.56  
2s: 1.07

Acceptable Range: 70.04 72.182267

Date	Analyst	Micrograph	Ring #	D(mm)	R (mm)	d (A)	W (A)	L (mm)	CC
7/7/20	MS	<u>CC070720</u>	1- 0°	60.5	30.25	2.355	0.037	1925.37	71.24
			1- 45°	60.5	30.25	2.355	0.037	1925.37	71.24
			1- 90°	60	30	2.355	0.037	1909.46	70.65
			3	98	49	1.442	0.037	1909.68	70.66
			4	115	57.5	1.231	0.037	1913.04	70.78
7/15/20	MS	<u>CC071520</u>	1- 0°	59.5	29.75	2.355	0.037	1893.55	70.06
			1- 45°	59.5	29.75	2.355	0.037	1893.55	70.06
			1- 90°	60	30	2.355	0.037	1909.46	70.65
			3	98.0	49	1.442	0.037	1909.68	70.66
			4	115.5	57.75	1.231	0.037	1921.36	71.09
7/22/20	MS	<u>CC072220</u>	1- 0°	60.5	30.25	2.355	0.037	1925.37	71.24
			1- 45°	60.5	30.25	2.355	0.037	1925.37	71.24
			1- 90°	60.5	30.25	2.355	0.037	1925.37	71.24
			3	99	49.5	1.442	0.037	1929.16	71.38
			4	116.5	58.25	1.231	0.037	1937.99	71.71
7/30/20	MS	<u>CC073020</u>	1- 0°	61	30.5	2.355	0.037	1941.28	71.83
			1- 45°	61	30.5	2.355	0.037	1941.28	71.83
			1- 90°	60.5	30.25	2.355	0.037	1925.37	71.24
			3	99.5	49.75	1.442	0.037	1938.91	71.74
			4	116.5	58.25	1.231	0.037	1937.99	71.71
			1- 0°			2.355	0.037		
			1- 45°			2.355	0.037		
			1- 90°			2.355	0.037		
			3			1.442	0.037		
			4			1.231	0.037		

Average: 1909.93 71.11  
SD 0.54  
5% of Mean 3.56  
2s 1.07





International Asbestos  
Testing Laboratories

TEM QA/QC Program

**2020**

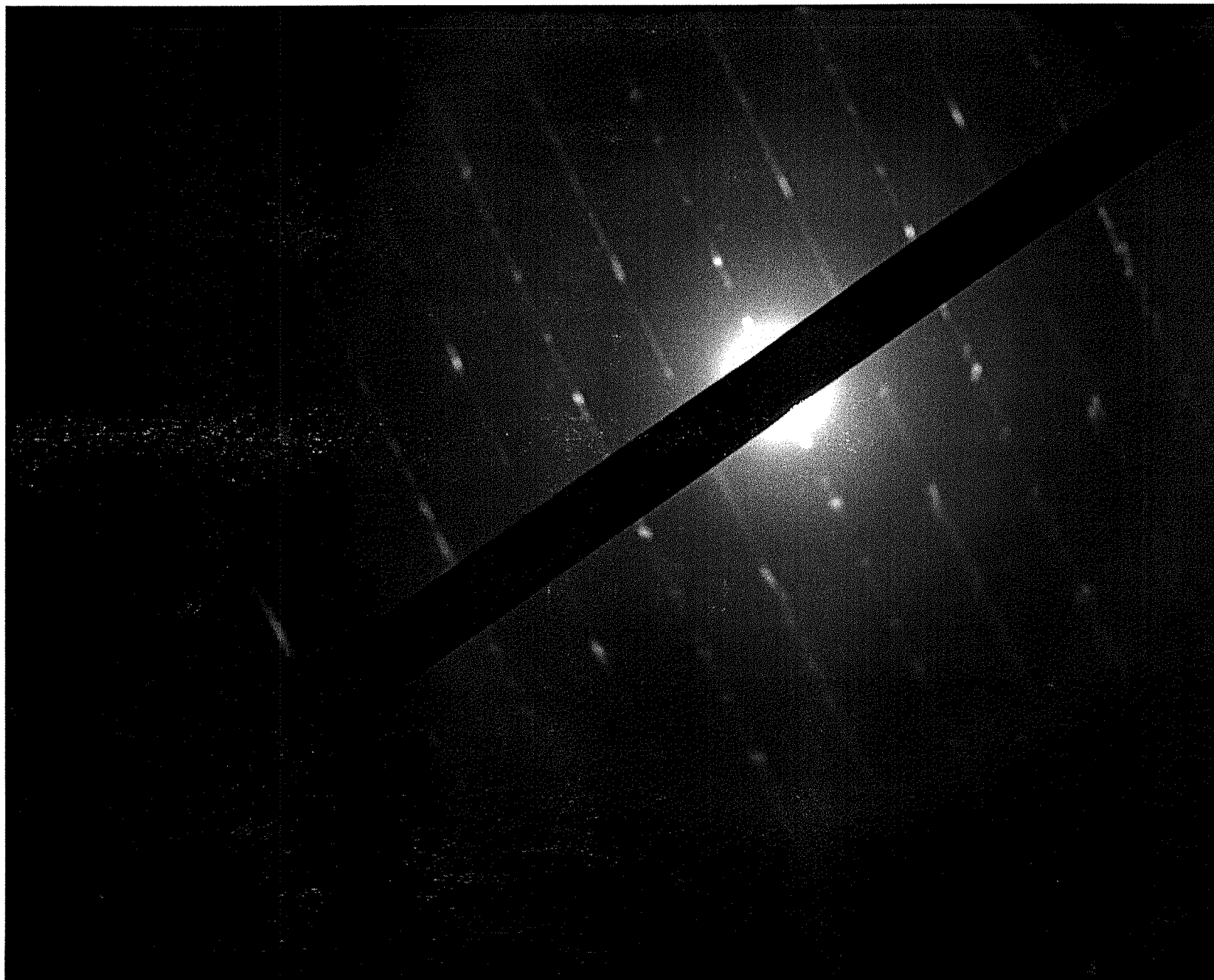
**Magnification Calibration Checks**

TEM ID: JEOL, JEM-1230, EM18440033

TEM: III

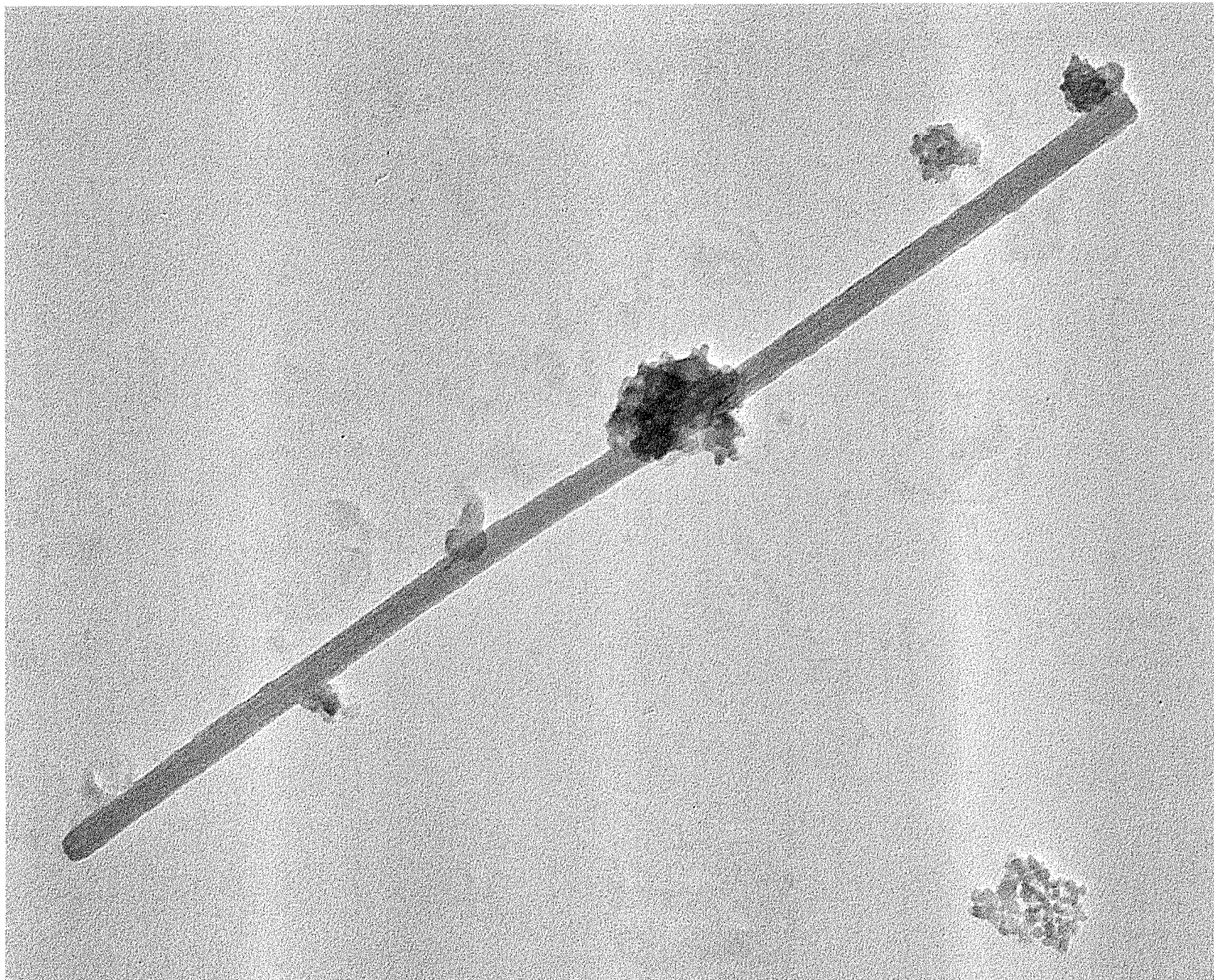
EDXA ID: EVEX, EDX System

Date	Photo# (20k)	Sphere(20k)	Photo# (2k)	Lines(10k)	40,000	800,000
7/8/20	MC0720S	0.260	MC0720L	4.40	44,182	747,692
8/6/20	MC0820S	0.269	MC0820L	4.46	43,587	722,677



7042317-1.tif  
7042317-1  
10:11 08/04/20  
TEM Mode: Diffraction  
Microscopist: MS

HV=100kV  
Cam Len: 0.2 m  
AMT Camera System



7042317-HighMag.tif

7042317-HM

Print Mag: 95800x @ 7.0 in

14:08 08/28/20

TEM Mode: Imaging

Microscopist: MS

100 nm

HV=95kV

Direct Mag: 12000x

AMT Camera System

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## Appendix H: Data Usability Report



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***FPM Remediations, Inc.***  
***Data Verification and Usability Report***  
***Mountain Home AFB Asbestos Sampling***

***FPM Project No. 1085-20-01-01:a***

**Bulk: iATL Job #614712, Air: iATL Jobs #617132, 617346, 617671**

Laboratory: International Asbestos Testing Laboratories (iATL)  
Sample Matrix: Bulk Samples and Air Samples  
Number of Samples: 50 and 45, respectively  
Analytical Protocol: Per project-specific UFP QAPP, USEPA PLM Guidelines, USEPA TEM Guidelines  
Data Reviewer: Connie van Hoesel  
Sample Dates: Bulk: June 4-5, 2020; Air: July 21, 29, and August 5, 2020

---

**LIST OF DATA VERIFICATION SAMPLES**

This verification report pertains to the following environmental samples and corresponding QC samples:

<b>L&amp;R SAMPLE NUMBER</b>	<b>Lab Sample ID</b>	<b>Sample Date</b>	<b>Analysis, Method (PLM/TEM)</b>
<b><i>SDG 614712</i></b>			
LF043-B-01-NE-1	7020393	6/4-6/5/2020	Bulk, PLM
LF043-B-02-NE-1	7020394	6/4-6/5/2020	Bulk, PLM
LF043-B-03-NE-1	7020395	6/4-6/5/2020	Bulk, PLM
LF043-B-04-NE-1	7020396	6/4-6/5/2020	Bulk, PLM
LF043-B-05-NE-1	7020397	6/4-6/5/2020	Bulk, PLM
LF043-B-06-NE-1	7020398	6/4-6/5/2020	Bulk, PLM
LF043-B-07-NE-1	7020399	6/4-6/5/2020	Bulk, PLM
LF043-B-08-NE-1	7020400	6/4-6/5/2020	Bulk, PLM
LF043-B-09-NE-1	7020401	6/4-6/5/2020	Bulk, PLM
LF043-B-10-NE-1	7020402	6/4-6/5/2020	Bulk, PLM
LF043-B-11-NE-1	7020403	6/4-6/5/2020	Bulk, PLM
LF043-B-12-NE-1	7020404	6/4-6/5/2020	Bulk, PLM
LF043-B-13-NE-1	7020405	6/4-6/5/2020	Bulk, PLM
LF043-B-14-NE-1	7020406	6/4-6/5/2020	Bulk, PLM
LF043-B-15-NE-1	7020407	6/4-6/5/2020	Bulk, PLM
LF043-B-16-NE-1	7020408	6/4-6/5/2020	Bulk, PLM
LF043-B-17-NE-1	7020409	6/4-6/5/2020	Bulk, PLM
LF043-B-18-NE-1	7020410	6/4-6/5/2020	Bulk, PLM
LF043-B-19-NE-1	7020411	6/4-6/5/2020	Bulk, PLM
LF043-B-20-NE-1	7020412	6/4-6/5/2020	Bulk, PLM
LF043-B-21-NW-2	7020413	6/4-6/5/2020	Bulk, PLM
LF043-B-22-NW-2	7020414	6/4-6/5/2020	Bulk, PLM

<b>L&amp;R SAMPLE NUMBER</b>	<b>Lab Sample ID</b>	<b>Sample Date</b>	<b>Analysis, Method (PLM/TEM)</b>
LF043-B-23-NW-2	7020415	6/4-6/5/2020	Bulk, PLM
LF043-B-24-NW-2	7020416	6/4-6/5/2020	Bulk, PLM
LF043-B-25-NW-2	7020417	6/4-6/5/2020	Bulk, PLM
LF043-B-26-NW-2	7020418	6/4-6/5/2020	Bulk, PLM
LF043-B-27-NW-2	7020419	6/4-6/5/2020	Bulk, PLM
LF043-B-28-NW-2	7020420	6/4-6/5/2020	Bulk, PLM
LF043-B-29-NW-2	7020421	6/4-6/5/2020	Bulk, PLM
LF043-B-30-NW-2	7020422	6/4-6/5/2020	Bulk, PLM
LF043-B-31-NW-2	7020423	6/4-6/5/2020	Bulk, PLM
LF043-B-32-NW-2	7020424	6/4-6/5/2020	Bulk, PLM
LF043-B-33-NW-2	7020425	6/4-6/5/2020	Bulk, PLM
LF043-B-34-NW-2	7020426	6/4-6/5/2020	Bulk, PLM
LF043-B-35-NW-2	7020427	6/4-6/5/2020	Bulk, PLM
LF043-B-36-NW-2	7020428	6/4-6/5/2020	Bulk, PLM
LF043-B-37-NW-2	7020429	6/4-6/5/2020	Bulk, PLM
LF043-B-38-NW-2	7020430	6/4-6/5/2020	Bulk, PLM
LF043-B-39-NW-2	7020431	6/4-6/5/2020	Bulk, PLM
LF043-B-40-NW-2	7020432	6/4-6/5/2020	Bulk, PLM
LF043-B-41-SE-2	7020433	6/4-6/5/2020	Bulk, PLM
LF043-B-42-SE-2	7020434	6/4-6/5/2020	Bulk, PLM
LF043-B-43-SE-2	7020435	6/4-6/5/2020	Bulk, PLM
LF043-B-44-SE-2	7020436	6/4-6/5/2020	Bulk, PLM
LF043-B-45-SE-2	7020437	6/4-6/5/2020	Bulk, PLM
LF043-B-46-SW-2	7020438	6/4-6/5/2020	Bulk, PLM
LF043-B-47-SW-2	7020439	6/4-6/5/2020	Bulk, PLM
LF043-B-48-SW-2	7020440	6/4-6/5/2020	Bulk, PLM
LF043-B-49-SW-2	7020441	6/4-6/5/2020	Bulk, PLM
LF043-B-50-SW-2	7020442	6/4-6/5/2020	Bulk, PLM
<b><i>SDG 617132'</i></b>			
LF043-A-01-SE-1/(01 on COC)	7040574	7/21/2020-7/22/2020	Air, TEM
LF043-A-02-SE-1/(02 on COC)	7040575R	7/21/2020-7/22/2020	Air, TEM
LF043-A-02-SE-1/(02 on COC)	7040575	7/21/2020-7/22/2020	Air, TEM
LF043-A-03-NE-1/(03 on COC)	7040576	7/21/2020-7/22/2020	Air, TEM
LF043-A-04-NE-1/(04 on COC)	7040577	7/21/2020-7/22/2020	Air, TEM
LF043-A-05-NE-1/(05 on COC)	7040578	7/21/2020-7/22/2020	Air, TEM
LF043-A-06-NW-1/(06 on COC)	7040579	7/21/2020-7/22/2020	Air, TEM
LF043-A-07-NW-1/(07 on COC)	7040580	7/21/2020-7/22/2020	Air, TEM
LF043-A-08-NW-1/(08 on COC)	7040581	7/21/2020-7/22/2020	Air, TEM
LF043-A-09-NW-1/(09 on COC)	7040582	7/21/2020-7/22/2020	Air, TEM
LF043-A-10-NW-1/(10 on COC)	7040583	7/21/2020-7/22/2020	Air, TEM
LF043-A-11-SW-1/(11 on COC)	7040584	7/21/2020-7/22/2020	Air, TEM
LF043-A-12-SW-1/(12 on COC)	7040585	7/21/2020-7/22/2020	Air, TEM
LF043-A-12-SW-1/(12 on COC)	7040585R	7/21/2020-7/22/2020	Air, TEM
LF043-A-13-N-1/(13 on COC)	7040586	7/21/2020-7/22/2020	Air, TEM

L&R SAMPLE NUMBER	Lab Sample ID	Sample Date	Analysis, Method (PLM/TEM)
LF043-A-14-B-1/(14 on COC) <sup>2</sup>	7040587	7/21/2020-7/22/2020	Air, TEM
LF043-A-15-B-1/(15 on COC) <sup>2</sup>	7040588	7/21/2020-7/22/2020	Air, TEM
<b>SDG 617346<sup>1</sup></b>			
LF043-A-16-SE-2/(01 on COC)	7042315	7/28/2020	Air, TEM
LF043-A-16-SE-2/(01 on COC)	7042315-REP	7/28/2020	Air, TEM
LF043-A-17-SE-2/(02 on COC)	7042316	7/28/2020	Air, TEM
LF043-A-18-NE-2/(03 on COC)	7042317	7/28/2020	Air, TEM
LF043-A-19-NE-2/(04 on COC)	7042318	7/28/2020	Air, TEM
LF043-A-20-NE-2/(05 on COC)	7042319	7/28/2020	Air, TEM
LF043-A-21-NW-2/(06 on COC)	7042320	7/28/2020	Air, TEM
LF043-A-22-NW-2/(07 on COC)	7042321	7/28/2020	Air, TEM
LF043-A-23-NW-2/(08 on COC)	7042322	7/28/2020	Air, TEM
LF043-A-24-NW-2/(09 on COC)	7042323	7/28/2020	Air, TEM
LF043-A-25-NW-2/(10 on COC)	7042324	7/28/2020	Air, TEM
LF043-A-26-SW-2/(11 on COC)	7042325	7/28/2020	Air, TEM
LF043-A-27-SW-2/(12 on COC)	7042326	7/28/2020	Air, TEM
LF043-A-27-SW-2/(12 on COC)	7042326-REP	7/28/2020	Air, TEM
LF043-A-28-N-2/(13 on COC)	7042327	7/28/2020	Air, TEM
LF043-A-29-B-2/(14 on COC) <sup>2</sup>	7042328	7/28/2020	Air, TEM
LF043-A-30-B-2/(15 on COC) <sup>2</sup>	7042329	7/28/2020-7/29/2020	Air, TEM
<b>SDG 617671<sup>1</sup></b>			
LF043-A-31-SE-3/(01 on COC)	7045849	8/4/2020	Air, TEM
LF043-A-31-SE-3/(01 on COC)	7045849-rep	8/4/2020	Air, TEM
LF043-A-32-SE-3/(02 on COC)	7045850	8/4/2020	Air, TEM
LF043-A-33-NE-3/(03 on COC)	7045851	8/4/2020	Air, TEM
LF043-A-34-NE-3/(04 on COC)	7045852	8/4/2020	Air, TEM
LF043-A-35-NE-3/(05 on COC)	7045853	8/4/2020	Air, TEM
LF043-A-36-NW-3/(06 on COC)	7045854	8/4/2020	Air, TEM
LF043-A-37-NW-3/(07 on COC)	7045855	8/4/2020	Air, TEM
LF043-A-38-NW-3/(08 on COC)	7045856	8/4/2020	Air, TEM
LF043-A-39-NW-3/(09 on COC)	7045857	8/4/2020	Air, TEM
LF043-A-40-NW-3/(10 on COC)	7045858	8/4/2020	Air, TEM
LF043-A-41-SW-3/(11 on COC)	7045859	8/4/2020	Air, TEM
LF043-A-41-SW-3/(11 on COC)	7045859-rep	8/4/2020	Air, TEM
LF043-A-42-SW-3/(12 on COC)	7045860	8/4/2020	Air, TEM
LF043-A-43-N-3/(13 on COC)	7045861	8/4/2020	Air, TEM
LF043-A-44-B-3/(14 on COC) <sup>2</sup>	7045862	8/4/2020	Air, TEM
LF043-A-45-B-3/(15 on COC) <sup>2</sup>	7045863	8/4/2020	Air, TEM

Notes: <sup>1</sup>Two laboratory blanks were also analyzed as part of this SDG.

<sup>2</sup>Field blank.

## ANALYTICAL METHODS

The analytical test methods and QA/QC requirements used for the sample analyses were per methods as specified in the project-specific QAPP. The analytical methods employed included

asbestos by Polarized Light Microscopy (PLM) by Method USEPA 600/R-93/116/PLM.007 and by Transmission Electron Microscope (TEM) by Method ISO10312:2019/TEM.002.

## **DELIVERABLES**

The data deliverable reports were per requirements of the method SOPs, as specified in the project-specific QAPP (FPM, 2020). The PLM report consisted of the following: batch/sample management report summary, lab correspondence, chain-of-custody, sample log, bench worksheets, daily QA/QC worksheets, PLM Microscope Logs, Refractive Index Oil Calibration Check, PLM Round Robin results, and NVLAP Bulk Asbestos Proficiency Test results. The TEM reports consisted of the following: batch/sample management report summary, lab correspondence, chain-of-custody, sample log, TEM air sample worksheets, Final Results Summary sheets, TEM Daily Log sheets, Inter/Intra analyst R calculations, NVLAP TEM Proficiency Test results, and sheets for the following: Low Temperature Asher Calibration, TEM Finder Grid Calibration, EDS Calibration Al-Cu, EDS Resolution, Minimum Detection Limit Calculations (TEM), Beam Dose Calibration, Beam Spot Size, Camera Constant, and Magnification Calibration Checks.



## VERIFICATION GUIDANCE

The analytical work was performed by iATL in accordance with the QC requirements of the respective analytical methods and of the QAPP. The data usability analysis was based on the reviewer's professional judgment and on an assessment of the criteria as listed in the QAPP.

## QA/QC CRITERIA

The following QA/QC criteria were reviewed for asbestos identification methods via PLM:

- Blank Analysis
- Intra-analyst reanalysis
- Inter-analyst reanalysis
- Inter-laboratory quality assurance
- Reference Sample Analysis
- Replicate Analysis
- Sample Receipt
- Point Counting Results (where applicable)
- Microscope Alignment
- Refractive Index Liquid Calibration

The following QA/QC criteria were reviewed for asbestos identification methods via TEM:

- Blank Analysis
- Intra-analyst reanalysis
- Inter-analyst reanalysis
- Interlaboratory quality assurance
- Reference Sample Analysis
- Magnification Scale
- Working Magnification
- Camera Constant
- Beam Dose
- Beam Spot Size
- K factors
- Energy Calibration Check
- Resolution
- Sensitivity
- Grid Opening Calibrations
- Low Temperature Asher Gravimetry Loss % over time

The items listed above were in compliance with project-specific QAPP criteria and protocols with exceptions discussed in the text below. The data have been verified according to the procedures outlined above and qualified accordingly.

## ***GENERAL NOTES:***

### **BLANKS**

No field blanks were required for bulk analysis, per the method. Daily method blanks for bulk analysis were conducted as required for the method and were all non-detect. For the air samples, the laboratory stated in its report that no field blanks were included for analysis. In fact, two field blanks per sample delivery group (SDG) were included blindly, and were designated as the sample 14 and 15 of each SDG. In addition, the laboratory provided two laboratory blanks for each SDG. No asbestos structures were detected in any field or laboratory blank sample.

### **SAMPLE LOG/CHAIN-OF-CUSTODY**

It was noted that the sampling times were incorrectly entered in the Sample Log for SDG 617132. Email correspondence with L&R clarified that the sampling time and the volume were correct and override the sampling start and end times. The original report for 617132 was reissued with corrected sample volumes. Similarly, the sample times were also entered incorrectly for sample 7042329 in SDG 617346, and the lab issued a revised report with corrected sample volume for this sample.

### **SAMPLE REPLICATES**

For air samples, the laboratory performed two sample replicates per SDG. No asbestos structures were detected in the primary/replicate sample pairs, so no replicate evaluation was required.

### **SAMPLE QC**

For sample 7042317, (03 from SDG 617346), secondary (inter-analyst) reanalysis was conducted, and the reported result was “ND” for any asbestos structures. However, the initial analyst reported one asbestos structure, a fiber (chrysotile), for the sample. As stated in the QAPP, when less than 5 structures are reported for a sample, the QC acceptance limit is  $\pm 1$  structure; outside this limit, corrective action is required by the laboratory. The EPA TEM Data Validation Guidelines indicate that for detections of less than 10 structures, the results should be identical between the primary analyst and the interanalyst reanalysis. Using professional judgment, and per the standard set forth in the EPA TEM Data Validation Guidelines, a “J” qualifier was applied to the detected result and a “UJ” qualifier to the non-detect result. The most conservative result should be reported for the sample.

### **RISK EVALUATION, AIR SAMPLES**

It should be noted that for risk purposes, the units of concentration employed in the current EPA approach for estimating cancer risks are fibers per cubic centimeter (f/cc) as measured by phase contrast microscopy or PCM-equivalent (PCMe) concentrations measured using TEM. The EPA residential risk level of  $1 \times 10^{-4}$  for cancer risk is less than 0.001 f/cc.

Sample LF043-A-18-NE-1, collected on July 29, 2020 along the eastern landfill boundary, was found to contain 1 structure of asbestos (identified as chrysotile) which was a fiber 2  $\mu\text{m}$  in length, and was reported by the laboratory as 0.000293 s/cc. According to the Method ISO10312:2019, a PCMe fiber is defined as “any particle with parallel or stepped sides, with an aspect ratio of 3:1 or

greater, longer than 5  $\mu\text{m}$ , and which has a diameter between 0.2  $\mu\text{m}$  and 3.0  $\mu\text{m}$ . For chrysotile, PCMe fibers will always be bundles.” Therefore, the corresponding result would be ND for PCMe fibers, and would be reported as  $< 0.000293$  f/cc.

No other asbestos structures were detected in any air samples.

## DATA USABILITY RESULTS

For each analysis performed, the following data parameters were assessed:

- laboratory analytical precision,
- accuracy,
- representativeness,
- completeness, and
- comparability (PARCC).

Data qualifier results from this review are summarized in Table 2.

### ASBESTOS (BULK)

Based on the evaluation of all information in the analytical data groups, the results for the bulk samples are usable without qualification. Using the verification approach as presented above, the results for all above samples are 100% usable.

### ASBESTOS (AIR)

Based on the evaluation of all information in the analytical data groups, the results for the air samples are usable with qualification, as explained in the Sample QC section and summarized in Table 2. Using the verification approach as presented above, the results for all above samples are 100% usable.

All data in Jobs #614712, #617132, 617346, and 617671 are valid and usable with qualifications as noted in the data review.

Signed: Concordia van Hoeseil

Date: 9/17/2020

**TABLE 2**  
**SUMMARY OF QUALIFIED DATA**  
**MOUNTAIN HOME AFB ASBESTOS SAMPLING**

Sample ID	Lab Sample ID	Analyte	Lab Flag	Validation Flag*	Reason
317346-03	7042317	All asbestos structures	None	J/UJ	Primary analysis 1 asbestos structure; Secondary interanalyst reanalysis ND

\*Data Usability Qualifier based on project QAPP data validation and data usability considerations.

#### **DATA USABILITY SUMMARY**

All data in Jobs #614712, 617132, 617346, and 617671 are valid and usable with qualifications as noted in the data review.

Signed: Concordia van Hoesel Date: 9/16/2020

#### **ATTACHMENTS**

- Chain of Custody
- Laboratory's Case Narrative
- Qualified final data verification results on annotated Lab Sheet 2s



August 28, 2020

**THE L & R GROUP – TECHNICAL SERVICES**  
680 South Progress Avenue 2A  
Meridian, ID 83642  
Tel | 208 813 7700

**ATTENTION:** Laurie Kuther, Project Manager

**REFERENCE:** Mountain Home AFB, LRG Project No. 200050T and 190075T,  
iATL Batches 617132, 617346, 617671, 614712

Laurie:

It was a pleasure to assist L and R in its recent project. Though we continue to be challenged in the laboratory by some of the logistical restrictions (ex. split shifts and physical barriers) introduced by C19, we were happy to be able to contribute to your project.

All data reports and Certificates of Analysis were filed in accordance with the batch ID and turn around specified. The client portal on our iTRACC LIMS always has archived reports in case you need to go back and download any specific test report.

This report details the items outlined in the QAPP for laboratory quality assurance. The attached reanalysis data, copies of logs, calibration data, and related items to satisfy the QAPP are also listed in tabular/checklist form. A Statement of Completion is also listed for attestation of compliance.

Let me know if you or your USACE team has any questions. We look forward to working with you in the future.

Regards,



Frank Ehrenfeld III  
Laboratory Director – Vice President iATL

## Contents:

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The Statement of Compliance relates to the analytical work completed by iATL in June, July, and August 2020 for the Mountain Home AFB, LRG Project No. 200050T and 190075T (iATL Batches 617132, 617346, 617671, 614712). Specifically, all sample receipt and handling requirements, archiving and storage, sample preparation and processing, sample analysis and data reporting, and subsequent Quality Assurance items have been completed in accordance with the specified analytical methods, our iATL SOPs, and the Quality Assurance Project Plan (QAPP) for this project. Related documentation of quality system compliance under our ISO17025:2017 accreditations (ex. AIHA LAP 100188, NIST NVLAP 101165, ELAP 11021) have been previously submitted.



Frank Ehrenfeld III  
Laboratory Director – Vice President iATL

August 28, 2020

Cc:

Tiffany Lowe  
Quality Manager

Whitney Champion  
Operations Manager

Laura D'Ornellas  
Sample Manager

Benjamin Reich  
TEM Sample Preparation

Mark Stewart  
TEM Group Leader, Senior Analyst

Craig A. Liska  
TEM Senior Analyst

Sarah Lipiecki  
PLM Senior Analyst

Linda Price  
PLM Senior Analyst

Will Riffle  
PLM Senior Analyst

QAPP Worksheet #28 – QA Samples Table (Bulk)

QAPP Worksheet #28 – QC Samples Table (Bulk)

<b>Matrix</b>		Bulk			
<b>Analytical Group</b>		PLM			
<b>Analytical Method/SOP Reference1</b>		USEPA 600/R-93/116/PLM .007			
<b>QC Sample</b>	<b>Frequency/Number</b>	<b>Method/SOP QC Acceptance Limits</b>	<b>Corrective Action</b>	<b>Person(s) Responsible for Corrective Action2</b>	<b>Measurement Performance Criteria</b>
Method Blank	Daily use of non-ACM material	<0.25%	Determine the source of the contamination.	Analyst	Same as Method/SOP QC Acceptance Limits
Intra-analyst reanalysis	2% of samples analyzed per day	R-value -1/+1 Exceptions at low level quant	Second analyst performs another reanalysis, Initial analyst revisits/reanalyzes sample.	Analyst QA Manager	Same as Method/SOP QC Acceptance Limits
Inter-analyst Quality assurance	7% of sample analyzed per day	R-value -1/+1 Exceptions at low level quant	Second analyst performs another reanalysis, if need a tertiary analyst follows. Initial analyst revisits/reanalyzes sample.	Analyst QA Manager	Same as Method/SOP QC Acceptance Limits
Inter-laboratory Quality assurance	Quarterly	2-3x standard deviation	Inter Laboratory round robin and/or Proficiency Test participation.	Analyst QA Manager	Same as Method/SOP QC Acceptance Limits
Reference sample	Daily for alignment, qual, and quant.	Must meet established acceptance criteria	Reanalyze is misclassification.	Analyst	Same as Method/SOP QC Acceptance Limits

## Bulk Data Checklist and Narrative:

iATL received 50 bulk building material samples from LRG308 on June 10, 2020. Laura D’Ornellas, iATL Sample Manager inspected and logged in the samples as iATL Batch 614712. These samples were noted as received shipped and received in acceptable condition meeting USEPA 600 R93-116 requirements for sample volume and shipping integrity. The shipment contained an accurate chain of custody listing Project 190075T as Project Name MHAFB LF043. A Sample Log noting each sample’s unique identification and description was in order. iATL unique sample identification numbers were attached to the samples and those numbers stamped on the Log.

Initial Sample Analysis, Sarah Lipiecki, June 12 and June 16, 2020

Secondary QA Sample Analysis, Linda Price, June 16, 2020

Secondary QA Sample Analysis, Will Riffle, August 25, 2020

Table #28 Bulk PLM

Sample	Analyst 1° (SL)	Analyst 2° (LP)	Analyst 2° (CR)	QA Result (+/-)
7020394	ND	NA	ND	+
7020398	ND	NA	ND	+
7020408	ND	NA	ND	+
7020401	ND	NA	ND	+
7020404	20	NA	20	+
7020426	ND	ND	NA	+
7020423	30	12	NA	+
7020413	ND	ND	NA	+
7020431	40	25	NA	+
7020440	ND	ND	NA	+

Results by USEPA 600 R93-116 in CVAE (%) or PC (%)

Samples randomly selected for Intra/InterAnalyst QA ReAnalysis

R-value Acceptance +, Rejection -

## QA Checklist:

<input type="checkbox"/> Analyst Logbooks	Completed/Attached
<input type="checkbox"/> Method Blank	Completed/Attached
<input type="checkbox"/> Intra and Inter Analyst Reanalysis Data (Table #28 Bulk – above)	Completed/Attached
<input type="checkbox"/> Daily Reference Material Analysis	Completed/Attached
<input type="checkbox"/> Daily Microscope Calibration/Alignment	Completed/Attached
<input type="checkbox"/> Refractive Index Oil 1.550, 1.605, 1.680 -Calibrations Logs	Completed/Attached
<input type="checkbox"/> Analyst InterLaboratory and/or PT Proficiency	Completed/Attached



QAPP Worksheet #28 – QC Samples Table (Air)

Matrix		Air			
Analytical Group		Asbestos			
Analytical Method/SOP Reference1		ISO 10312:2019/TEM.002			
QC Sample	Frequency/Number	Method/SOP QC Acceptance Limits	Corrective Action	Person(s) Responsible for Corrective Action2	Project- Specific Measurement Performance Criteria
Method Blank	5% of submitted samples	1 structure	Determine the source of the contamination.  Clean equipment; prepare and analyze new blank.	Analyst	Same as Method/SOP QC acceptance limits
Field blank	10% of submitted samples	1 structure	Determine the source of the contamination.  Clean equipment; prepare and analyze new blank.	Analyst	Same as Method/SOP QC acceptance limits
Intra-analyst reanalysis	2% of samples analyzed per day	<5structures $\pm$ 1s; 5-20structures $\pm$ 2s; >20structures $\pm$ 3s or 3StDev	Reanalyze the sample. Second analyst performs another reanalysis.	Analyst QA Manager	Same as Method/SOP QC acceptance limits
Inter-analyst Quality assurance	7% of sample analyzed per day	<5structures $\pm$ 1s; 5-20structures $\pm$ 2s; >20structures $\pm$ 3s or 3StDev	Reanalyze the sample. Second analyst performs another reanalysis.	Analyst QA Manager	Same as Method/SOP QC acceptance limits
Inter-laboratory Quality assurance	Quarterly	2x standard deviation	Inter Laboratory Verification – Round Robin or Proficiency Test samples	Analyst QA Manager	Same as Method/SOP QC acceptance limits
Reference sample	EDS Calibrations See Table WS24	Must meet established acceptance criteria	Reanalyze after service call and within acceptable limits	Analyst	Same as Method/SOP QC acceptance limits

## Air Data Checklist and Narrative:

iATL received 45 air monitoring cassettes samples from LRG308 in three separate shipments on July 27, July 30, and August 6, 2020. Laura D’Ornellas, iATL Sample Manager inspected and logged in the samples as iATL Batches 617132, 617346, 617671. These samples were noted as received shipped and received in acceptable condition meeting ISO10312 requirements for shipping integrity. The shipment contained an accurate chain of custody listing Project 200050T as Project Name Mountain Home AFB. A Sample Log noting each sample’s unique identification and description was in order (though collected sample volumes were checked and recalculated). iATL unique sample identification numbers were attached to the samples and those numbers stamped on the Log. No field blanks were included. iATL provided Laboratory Blanks for each batch. Required QA reanalysis and instrument calibrations were completed.

Sample Preparation, Ben Reich July 28, August 3, and August 6, 2020

Initial Sample Analysis, Mark Stewart, July 28, 29, 30, August 4, 5, 6, and August

Secondary QA Sample Analysis, Craig Liska, July 28, 29, August 7 and 8, 2020

Table #28 Air TEM

Sample	Analyst 1° (MS)	Analyst 2 ° (MS)	Analyst 2 ° (CL)	Lab Blank <sup>(1)</sup>	QA Result (+/-)
617132 LB1	ND	NA	NA	ND	+
617132 LB2	ND	NA	NA	ND	+
7040575 Rep	ND	ND	NA	NA	+
7040585 Rep	ND	ND	NA	NA	+
7040574 Inter	ND	NA	ND	NA	+
7040584 Inter	ND	NA	ND	NA	+
617346 LB1	ND	NA	NA	ND	+
617346 LB2	ND	NA	NA	ND	+
7042315 Rep	ND	ND	NA	NA	+
7042326 Rep	ND	ND	NA	NA	+
617671 LB1	ND	NA	NA	ND	+
617671 LB2	ND	NA	NA	ND	+
7045849 Rep	ND	ND	NA	NA	+
7045859 Rep	ND	ND	NA	NA	+
7045850 Inter	ND	NA	ND	NA	+
7045860 Inter	ND	NA	ND	NA	+
7042317 Inter	1 chrys fiber at DL 0.00029 s/cc	NA	ND, <0.00029 s/cc	NA	+
7042325 Inter	ND	NA	ND	NA	+

Results by ISO 10312 in s/cc, ND = None Detected, NA = Not Applicable

1, Fields Blanks not submitted, Lab Blanks None Detected at <7.7 s/mm<sup>2</sup>

Samples randomly selected for Intra/InterAnalyst QA ReAnalysis

R-value Acceptance +, Rejection -

## QA Checklist:

- ☐ Analyst Logbooks
- ☐ Method Blank / Laboratory Blanks
- ☐ Intra and Inter Analyst Reanalysis Data (Table #28 Air – above)
- ☐ Routine Calibrations [EDS, SAED, Magnification]
- ☐ Daily Microscope Calibration/Alignment
- ☐ Analyst InterLaboratory and/or PT Proficiency

Completed/Attached  
Completed/Attached  
Completed/Attached  
Completed/Attached  
Completed/Attached  
Completed/Attached

# QAPP Worksheet #24 – Analytical Instrument Calibration

QAPP Worksheet #24 – Analytical Instrument Calibration

Instrument <sup>1</sup>	Calibration Item	Calibration Range	Frequency	Acceptance Criteria <sup>2</sup>	Corrective Action <sup>3</sup>	Title/position responsible for CA	Applicable SOP for calibration
TEM I	Magnification Scale	0-40,000x	Annually	10%	Service Call	Quality Manager	TEM.002
TEM I	Working Magnification	20,000x	Quarterly	10%	Service Call	Quality Manager	TEM.002
TEM I	Camera Constant (SAED)	nm-nm	Monthly	10%	Service Call	Quality Manager	TEM.002
TEM I	Beam Dose (SAED)	Seconds	Monthly	30-60	Service Call	Quality Manager	TEM.002
TEM I	Beam Spot Size	250nm	Monthly	15%	Service Call	Quality Manager	TEM.002
EDS I	K Factors	1Kev - 10Kev	Annually	Sliding energy scale	Service Call	Quality Manager	TEM.002
EDS I	Energy Calibration Check	1KeV - 10KeV	Weekly	Al Ka, Cu Ka	Service Call	Quality Manager	TEM.002
EDS I	Resolution	Mn Ka	Monthly	75KeV FWHM	Service Call	Quality Manager	TEM.002
EDS I	Sensitivity	Na Ka	Monthly	3x SD	Service Call	Quality Manager	TEM.002
PLM	Refractive Index Oil	1.550-1.700	Receipt of new batch & quarterly	0.004	Reject Product	Quality Manager	PLM.007
PLM	Alignment	stage objectives optic axis polarizers	Daily check	RI colors and Ext Angle of SRM	Service Call	Analyst	PLM.007
Analytical Balance	Mass	NIST Class S-1 weights Troemner Certification	Daily AutoCal prior to use	0.002 g	Monthly checks with weights. Sartorius Certification.	Analyst/Quality Manager	PLM.007
Muffle Furnace	Temperature	485oC	Monthly	5% range	Service Call	Quality Manager	PLM.007
NIST Traceable Digital Thermometers	Temperature	-1 - 101oC	Daily check	+/- 1oC	Replacement	Quality Manager	PLM.007
Grid Opening Calibrations	Area	0.112-0.118mm	Receipt of batch	0.0130-0.0134mm <sup>2</sup>	Revise calculations	Analyst	TEM
Low Temperature Asher (Plasma)	Gravimetry Loss % over time setting	5-15%	Monthly	5-15%	Adjust / recalibrate	Analyst	TEM

## Instrument/Facilities/Equipment Calibrations

Daily instrument and prep/processing equipment logs are available and attached. Calibrations include units and acceptability ranges. All daily routine alignment, EDS energy scale, etc. noted in attached logs. Since no indirect preparations for bulk samples (ex. ELAP 198.4) or air samples (ex. ISO13794) were needed, the gravimetric calibrations of muffle furnace and analytical balance are not included. The annual k-factor study was also not included, especially since no asbestos minerals were detected.

Table #24 Analytical Instrument Calibrations

Instrument Equipment	Calibration Item	Range Studied	Frequency Check	Corrective Action	QA Result (+/-)
TEM	Mag Scale	0-40kX	Annually	NA	+
TEM	Analysis Mag	20kX	Quarterly	NA	+
TEM	Camera Constant	mm-nm	Monthly	NA	+
TEM	Beam Dose	Seconds	Monthly	NA	+
TEM	Spot Size	250nm	Monthly	NA	+
EDS	Energy Scale	1-10KeV	Weekly	NA	+
EDS	Resolution	Mn Ka	Monthly	NA	+
EDS	Sensitivity	Na Ka	Monthly	NA	+
PLM	RI Oil	See p 5	Product	NA	+
PLM	Alignment	Log	Daily	NA	+
TEM	Grid Opening	Log	Product	NA	+
TEM	LTA/PEA	Log	Monthly	NA	+

Product = calibrated upon receipt of product from vendor

Acceptance +, Rejection -, by 40CFR763 Quality Assurance Calibration Specifications

## QA Checklist:

All relevant log book entries and individual instrument calibrations noted above attached.







9000 Commerce Parkway Suite B  
Mt. Laurel, New Jersey 08054  
Telephone: 8562319449  
Email: customerservice@iatl.com

### BATCH / SAMPLE MANAGEMENT REPORT

Customer No:	LRG308	Batch Number:	614712
Customer:	The L & R Group - Technical Services 680 South Progress Ave 2A Meridian ID	Project:	MHAFB LF043
Customer Rep:	Shirley Clark	Project Number:	190075T
		TAT:	5 Day
# of Samples:	50 <i>per client</i>	Analysis:	PLM
		Date/Time Recd:	06/10/2020 12:28 PM
		Date/Time Due:	06/17/2020 5:00 PM

Client Notes: N/A

Lab Technician Notes: N/A

Accounting Notes: N/A

Report Processing Notes: N/A

#### Shipping Error:

- \_\_\_\_\_ Samples were not received in a sealed container. Bulk samples not double bagged.
- \_\_\_\_\_ Air Cassettes received open in bag...sample integrity compromised, possible contamination.
- \_\_\_\_\_ Samples received wet.
- \_\_\_\_\_ Samples received covered with dust...possible cross contamination.
- \_\_\_\_\_ Sample containers damaged, contents spilled...possible cross contamination.
- \_\_\_\_\_ Paperwork received in the same bag as samples possible contamination.
- \_\_\_\_\_ No / Incomplete Chain of Custody Received.
- \_\_\_\_\_ No / Incomplete Sample Log Received.
- \_\_\_\_\_ Sample container IDs do not match the client's sample log.
- \_\_\_\_\_ No Turnaround Time indicated.
- \_\_\_\_\_ PCM Re-prep for TEM NIOSH 7402. Cassettes previously opened and portion of filter removed.
- \_\_\_\_\_ Blank (s) not submitted as required by the requested analytical method.
- \_\_\_\_\_ Minimum shipping requirements not attained. See attached Carrier Air Bill.
- \_\_\_\_\_ Other: \_\_\_\_\_

#### Batch Error:

- \_\_\_\_\_ Wrong Client ID Listed
- \_\_\_\_\_ Wrong Client Location Listed
- \_\_\_\_\_ Wrong Project ID Listed
- \_\_\_\_\_ Wrong TurnAround Time Listed
- \_\_\_\_\_ Wrong Due Date Listed
- \_\_\_\_\_ Wrong Date / Time Received Listed
- \_\_\_\_\_ Wrong Analysis Method Listed
- \_\_\_\_\_ Wrong Number of Samples Listed

#### Analysis Acknowledgement

☐ PLM \_\_\_\_\_

#### Login Error:

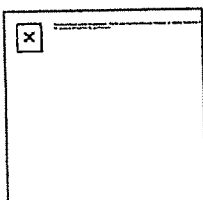
- \_\_\_\_\_ Sample Log Stamped Incorrectly:
- \_\_\_\_\_ Sample Containers Mislabeled
- \_\_\_\_\_ Duplicate / Extra Samples Not Stamped
- \_\_\_\_\_ Lab Technician Bench Sheet Error

## Login

---

**From:** Shirley Clark  
**Sent:** Tuesday, June 9, 2020 4:32 PM  
**To:** PLM Requests  
**Subject:** Client Communication - The L & R Group - LRG308

Client Communication	
Staff Member	Shirley
Client Code	LRG308
Client Name	The L & R Group
Contact	Laurie Kuther
Email	amianthus@aol.com
Phone	208-813-6160
Sample Type	PLM
# of Samples	~ 50
Date Samples Arriving	6/10/20
Time Samples Arriving	AM
Method of Arrival	Overnight Delivery
Date/Time Results Requested	6/17/20
Project Name	
Client Request/Expectations	Email to Laurie



Shirley Clark

Senior Accounts Manager  
International Asbestos Testing Laboratories, Inc.  
9000 Commerce Parkway, Suite B  
Mt. Laurel, NJ 08054  
P: 856 231-9449 ext. 1002

[www.iatl.com](http://www.iatl.com)

Re: L and R Group, FYI

Frank Ehrenfeld <frankehrenfeld@iatl.com>

Fri 5/22/2020 10:11 AM

To: Login <Login@iatl.com>; Laura D'Ornellas <ldornellas@iatl.com>; David Hayes <DHayes@iatl.com>; Benjamin Reich <breich@iatl.com>

Cc: Eric Snyder <ericsnyder@iatl.com>; Shirley Clark <shirleyclark@iatl.com>; Whitney Champion <wchampion@iatl.com>; Sarah Lipiecki <SLipiecki@iatl.com>; Mark Stewart <mstewart@iatl.com>; Patrick Carr <PCarr@iatl.com>

Login:

When package arrives from L&R (might have paperwork also from FPM Remediation and/or US Army Corp Engineers with Project [USACE MHA FB LF043, UFP-QAPP]). Please carefully and cleanly stamp paperwork as Rec'd with clear rec'd initials and time. This is part of QAPP project and we will be under strict protocols. Please photograph image of package before opening, after opening with contents, and do not log in until I can see image please.

- (1) Should be (~50) 200-500mL soil/building debris samples for PLM. Please assign to one analyst ONLY for duration of these samples (might be one more submittal in a few weeks. I recommend SL.
- (2) 10-13 PCM/TEM cassettes with high volumes (~3-5000L) and blank(s). Hold until I can see paperwork and samples. When logging in do not hide customer ID labels with iATL labels. Note filter color, condition, and loading before prep. Samples are to be completed by ISO10312 with some extra USEPA-like requirements. ONLY one TEM prepper (BR) and one TEM instrument (TEM I or II) and one analyst (MS or PC).

Let me know arrival and condition please.

Frank Ehrenfeld III

Laboratory Director – Vice President

Chair ASTM D2207

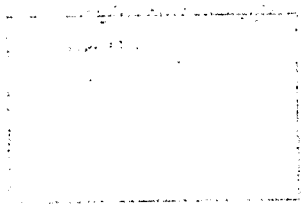
9000 Commerce Parkway,

Suite B

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856 231-9449 P

(b) (6) C  
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From: Eric Snyder <ericsnyder@iatl.com>

Sent: Friday, May 22, 2020 9:58 AM

To: Shirley Clark <shirleyclark@iatl.com>

Cc: Frank Ehrenfeld <frankehrenfeld@iatl.com>

Subject: L and R Group, FYI

Package set for FedEx delivery this morning from L&R



**Eric M. Snyder**

President

International Asbestos Testing Laboratories, Inc.

9000 Commerce Parkway, Suite B

Mt. Laurel, NJ 08054

P: 856 231-9449

[www.iatl.com](http://www.iatl.com)



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## Chain of Custody

—Bulk Asbestos—

### Contact Information

Client Company: The L&R Group  
Office Address: 680 S. Progress Ave.  
City, State, Zip: Meridian, ID 83642  
Fax Number: \_\_\_\_\_  
Email Address: laurie@thelandrgroup.com

Project Number: 190075T  
Project Name: MHAFB LF043  
Primary Contact: Laurie Kuther/L&R  
Office Phone: 208-813-7700  
Cell Phone: \_\_\_\_\_

### PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993  
☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982  
☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985  
☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002  
☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010  
☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009
- ☐ PLM: Point Counting  
☐ PC: via ELAP 198.1  
☐ PC: 400 Points  
☐ PC: 800 Points \*  
☐ PC: 1600 Points \*
- ☐ PLM: Instructions for Multi-Layered Samples  
☐ Analyze and Report All Separable Layers per EPA 600  
☐ Report Composite for Drywall Systems per NESHAP  
☐ Report All Layers and Composite Where Applicable  
☐ Only Analyze and Report Specifically Noted Layer
- ☐ PLM: Analyze Until Positive (Positive Stop)  
☐ AUP: by Homogenous Area as Noted  
☐ AUP: by Material Type as Noted  
☐ PLM: NOB via 198.6  
☐ PLM: Friable via EPA 600 2.3  
☐ If <1% by PLM, to TEM via 198.4 \*  
☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material \*\*\* (Dust, Wipe, Tape)  
☐ Soil or Vermiculite Analysis  
☐ CARB 435

### Special Instructions:

\* Additional charge and turnaround may be required

\*\* Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory

### Turnaround Time

Preliminary Results Requested Date: \_\_\_\_\_

☐ Verbal ☐ Email ☐ Fax

Specific date / time

☒ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day\* ☐ 12 Hour\*\* ☐ 6 Hour\*\* ☐ RUSH\*\*

\* End of next business day unless otherwise specified. \*\* Matrix Dependent. \*\*\*Please notify the lab before shipping\*\*\*

### Chain of Custody

Relinquished (Name/Organization): Laurie Kuther/L&R

Date: 6-8-20

Time: 1400

Received (Name / iATL): [Signature]

Date: [Signature]

Time: \_\_\_\_\_

Sample Login (Name / iATL): [Signature]

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Analysis (Name(s) / iATL): SL 6/12/20

Date: \_\_\_\_\_

Time: \_\_\_\_\_

QA/QC Review (Name / iATL): \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Archived / Released: \_\_\_\_\_ QA/QC InterLAB Use: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_



## Sample Log

–Bulk Asbestos–

Client: The L&R Group Project: MHAFB LF043

Sampling Date/Time: 6/4/2020-6/5/2020

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
LF043-B-01-NE-1	7020393	Tile/grout	
LF043-B-02-NE-1	7020394	Black rubber like material	
LF043-B-03-NE-1	7020395	Fiberboard	
LF043-B-04-NE-1	7020396	Insulation	
LF043-B-05-NE-1	7020397	Black rubber/plastic pipe	
LF043-B-06-NE-1	7020398	Foam	
LF043-B-07-NE-1	7020399	Fiberboard	
LF043-B-08-NE-1	7020400	Tile	
LF043-B-09-NE-1	7020401	Plastic pipe	
LF043-B-10-NE-1	7020402	Foam	
LF043-B-11-NE-1	7020403	Plastic pipe	
LF043-B-12-NE-1	7020404	Unknown Transite-like	
LF043-B-13-NE-1	7020405	Unknown plaster-like	
LF043-B-14-NE-1	7020406	Asphalt	
LF043-B-15-NE-1	7020407	Tar coating on metal pipe	
LF043-B-16-NE-1	7020408	Black plastic	

## Sample Log

—Bulk Asbestos—

Client: The L&R Group Project: MHAFB LF043

Sampling Date/Time: 6/4/2020-6/5/2020

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
LF043-B-17-NE-1	7020409	Painted fiberboard	
LF043-B-18-NE-1	7020410	foam with aluminum insulation	
LF043-B-19-NE-1	7020411	mastic on brick	
LF043-B-20-NE-1	7020412	ceramic tile	
LF043-B-21-NW-2	7020413	plastic	
LF043-B-22-NW-2	7020414	Roofing shingle	
LF043-B-23-NW-2	7020415	fibrous material with mastic	
LF043-B-24-NW-2	7020416	fibrous plastic	
LF043-B-25-NW-2	7020417	unknown, tile like	
LF043-B-26-NW-2	7020418	PVC pipe	
LF043-B-27-NW-2	7020419	Roofing shingle	
LF043-B-28-NW-2	7020420	Transite pipe	
LF043-B-29-NW-2	7020421	Transite pipe	
LF043-B-30-NW-2	7020422	Foam	
LF043-B-31-NW-2	7020423	unknown fibrous material	
LF043-B-32-NW-2	7020424	foam insulation	

7-3

## Sample Log

–Bulk Asbestos–

Client: The L&R Group

Project: MHAFB LF043

Sampling Date/Time: 6/4/2020-6/5/2020

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
LF043-B-33-NW-2	7020425	plastic tubing	
LF043-B-34-NW-2	7020426	plastic	
LF043-B-35-NW-2	7020427	tile with mastic	
LF043-B-36-NW-2	7020428	Transite pipe	
LF043-B-37-NW-2	7020429	Plastic tubing brown	
LF043-B-38-NW-2	7020430	Transite pipe	
LF043-B-39-NW-2	7020431	Transite pipe	
LF043-B-40-NW-2	7020432	Mesh tape	
LF043-B-41-SE-2	7020433	blue tile	
LF043-B-42-SE-2	7020434	Transite pipe	
LF043-B-43-SE-2	7020435	laminate	
LF043-B-44-SE-2	7020436	unknown pipe wrap	
LF043-B-45-SE-2	7020437	Transite and brick	
LF043-B-46-SW-2	7020438	Insulation	
LF043-B-47-SW-2	7020439	red brick	
LF043-B-48-SW-2	7020440	cement like material	



9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054  
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

## Sample Log

–Bulk Asbestos–

Client: The L&R Group Project: MHAFB LF043

Sampling Date/Time: 6/4/2020-6/5/2020

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
LF043-B-49-SW-2	7020441	blue tile	
LF043-B-50-SW-2	7020442	unknown, ceramic like	

Batch # 614712 -  
 Analyst: Sarah Lipiecki  
 Date: 6/12/2020  
 Client ID: L&R group  
 Station ID: 11  
 Reviewed By: \_\_\_\_\_

iATL# Client#	Color Material Type	% Asb	Asb	% NAst	NAst	% NF	Notes Optical Properties
7020393 LE043-B-01-N	Off-White Ceramic		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020393(L2)	Grey Grout		Nor ▼	3	Cell ▼	97	0 4 1.550       Yes 0         und
7020394 LE043-B-02-N	Black Fibrous		Nor ▼	7	Cell ▼	93	0 4 1.550       Yes 0         und
7020395 LE043-B-03-N	Brown Fiberboard		Nor ▼	80	Cell ▼	20	0 4 1.550       Yes 0         und
7020396 LE043-B-04-N	Silver/Tan Wrap / Insulation		Nor ▼	2	Cell ▼	98	LNS   0 4 1.550       No 0         und
7020397 LE043-B-05-N	Black Pipe Material		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020398 LE043-B-06-N	Yellow Foam		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020399 LE043-B-07-N	Brown Fiberboard		Nor ▼	80	Cell ▼	20	0 4 1.550       Yes 0         und



7020400	White		Nor ▼	Nor ▼	100	0 4 1.550     Yes 0  
LE043-B-08-N	Floor Tile					
7020401	White		Nor ▼	Nor ▼	100	0 4 1.550     Yes 0  
LE043-B-09-N	Pipe Material					
7020402	Yellow		Nor ▼	Nor ▼	100	0 4 1.550     Yes 0  
LE043-B-10-N	Foam					
7020403	White		Nor ▼	Nor ▼	100	0 4 1.550     Yes 0  
LE043-B-11-N	Pipe Material					
7020404	Grey	20	Chr ▼	8	Cell ▼	72
LE043-B-12-N	Cement Product					0 4 1.550 K N L + 0 1.547 1.555 Yes 0  
7020405	White		Nor ▼	Nor ▼	100	0 4 1.550     Yes 0  
LE043-B-13-N	Stucco					
7020406	Black		Nor ▼	5	Cell ▼	95
LE043-B-14-N	Asphalt					0 4 1.550     Yes 0         und
7020407	Black		Nor ▼	Nor ▼	100	0 4 1.550     Yes 0  
LE043-B-15-N	Tar					
7020408	Black		Nor ▼	Nor ▼	100	0 4 1.550     Yes 0  
LE043-B-16-N	Non-Fibrous					

Analyst Batch Comments:

END OF SAMPLE LOG

Batch # 614712 -  
 Analyst: Sarah Lipiecki  
 Date: 6/16/2020  
 Client ID: I&r group  
 Station ID: 11  
 Reviewed By: \_\_\_\_\_

iATL# Client#	Color Material Type	% Asb	Asb	% NAst	NAsb	% NF	Notes Optical Properties
7020409 LE043-B-17-N	White Fiberboard		Nor ▼	90	Cell ▼	10	0 4 1.550       Yes 0        und
7020410 LE043-B-18-N	Silver Wrap		Nor ▼	10	Cell ▼	90	0 4 1.550       Yes 0        und
7020410(L2)	Yellow Foam		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020411 LE043-B-19-N	Black Mastic		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020411(L2)	Off-White Mortar		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020412 LE043-B-20-N	Off-White Ceramic		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020413 LE043-B-21-N	Off-White Non-Fibrous		Nor ▼		Nor ▼	100	0 4 1.550       Yes 0  
7020414 LE043-B-22-N	Black Shingle		Nor ▼	20	Fibr ▼	80	0 4 1.550       Yes 0        iso
7020415 LE043-B-23-N	Black Fibrous		Nor ▼	80	Cell ▼	20	0 4 1.550       Yes 0        und

7020415(L2)	Black Mastic	Nor ▼	Nor ▼	100	0 4 1.550      Yes 0  
7020416	Green LE043-B-24-N\FRP Sheeting	Nor ▼	30 Fibr ▼	70	0 4 1.550      Yes 0         iso
7020416(L2)	Grey Debris	Nor ▼	20 Cell ▼	80	0 4 1.550      Yes 0         und
7020417	Tan/White LE043-B-25-N\Non-Fibrous	Nor ▼	Nor ▼	100	0 4 1.550      Yes 0  
7020417(L2)	Black Non-Fibrous	Nor ▼	Nor ▼	100	0 4 1.550      Yes 0  
7020418	White LE043-B-26-N\Pipe Material	Nor ▼	Nor ▼	100	0 4 1.550      Yes 0  
7020418(L2)	Brown Debris	Nor ▼	5 Cell ▼	95	0 4 1.550      Yes 0         und
7020419	Black LE043-B-27-N\Shingle	Nor ▼	20 Fibr ▼	80	0 4 1.550      Yes 0         iso
7020420	Grey LE043-B-28-N\Cement Product	20 10 10	Chrysc Amosit Crocidc	Nor ▼ 60	Second Asb Type Opt Prop =    1.680 s n m + 0 1.681 1.690    0 4 1.550 K N L + 0 1.549 1.557 Yes 0             1.680 s n m + 0 1.681 1.690             1.680 s y m - 0 1.680 1.692  
7020421	Grey LE043-B-29-N\Cement Product	20 10 10	Chrysc Amosit Crocidc	Nor ▼ 60	Second Asb Type Opt Prop =    1.680 s n m + 0 1.687 1.692    0 4 1.550 K N L + 0 1.546 1.556 Yes 0             1.680 s n m + 0 1.687 1.692             1.680 s y m - 0 1.680 1.685  

7020422	Blue		Nor ▼	Nor ▼	100	
LE043-B-30-N\Foam						0 4 1.550      Yes 0  
7020422(L2)	Tan		Nor ▼	5	Cell ▼	95
Debris						0 4 1.550      Yes 0         und
7020423	Grey	30	Chr ▼	Nor ▼	70	
LE043-B-31-N\Fibrous						0 4 1.550 K N L + 0 1.547 1.555 Yes 0  
7020424	White/Silver		Nor ▼	Nor ▼	100	
LE043-B-32-N\Insulation						0 4 1.550      Yes 0  
7020425	White		Nor ▼	Nor ▼	100	
LE043-B-33-N\Pipe Material						0 4 1.550      Yes 0  
7020426	Blue		Nor ▼	Nor ▼	100	
LE043-B-34-N\Non-Fibrous						0 4 1.550      Yes 0  
7020427	White		Nor ▼	Nor ▼	100	
LE043-B-35-N\Floor Tile						0 4 1.550      Yes 0  
7020427(L2)	Black	4.9	Chr ▼	Nor ▼	95.1	
Mastic						4 82 0 4 1.550 K N L + 0 1.548 1.557 Yes 0  
7020428	Grey	20	Chr ysc	Nor ▼	60	Second Asb Type Opt Prop =
LE043-B-36-N\Cement Product		20	Crocide			1.680 s y m - 0 1.681 1.686    0 4 1.550 K N L + 0 1.546 1.556 Yes 0             1.680 s y m - 0 1.681 1.686  
7020429	Brown		Nor ▼	Nor ▼	100	
LE043-B-37-N\Pipe Material						0 4 1.550      Yes 0  

7020430	Grey	20	Chrisc	Nor ▼	60	Second Asb Type Opt Prop =
LE043-B-38-N\Cement Product		20	Crocidc			1.680 s y m - 0 1.680 1.688
						0 4 1.550 K N L + 0 1.547 1.556 Yes 0
						1.680 s y m - 0 1.680 1.688
7020431	Grey	20	Chrisc	Nor ▼	60	Second Asb Type Opt Prop =
LE043-B-39-N\Cement Product		20	Crocidc			1.680 s y m - 0 1.682 1.690
						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						1.680 s y m - 0 1.682 1.690
7020432	Grey			Nor ▼	25	Syn ▼
LE043-B-40-N\Tape					75	
						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						und
7020432(L2)	Brown			Nor ▼	15	Cell ▼
Debris					85	
						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						und
7020433	Blue	2.4	Chr ▼	Nor ▼	97.6	
LE043-B-41-S\Floor Tile						4 164 0 4 1.550 K N L + 0 1.547 1.558 Yes 0
7020433(L2)	Brown			Nor ▼	10	Cell ▼
Debris					90	
						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						und
7020434	Grey	20	Chrisc	Nor ▼	60	Second Asb Type Opt Prop =
LE043-B-42-S\Cement Product		20	Crocidc			1.680 s y m - 0 1.682 1.690
						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						1.680 s y m - 0 1.682 1.690
7020435	White			Nor ▼	85	Cell ▼
LE043-B-43-S\Laminate					15	
						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						und
7020436	Red/Grey/Brown			Nor ▼	20	Cell ▼
LE043-B-44-S\Wrap					80	
						0 4 1.550 K N L + 0 1.547 1.557 Yes 0
						und



7020437	White	20	Chr ▼	Nor ▼	80	0 4 1.550 K N L + 0 1.546 1.556 Yes 0  	
LE043-B-45-S	Cement Product						
7020437(L2)	White		Nor ▼	Nor ▼	100	0 4 1.550 } } } } Yes 0  	
	Brick						
7020438	Brown/Silver		Nor ▼	15	Cell ▼	85	0 4 1.550 } } } } Yes 0         und
LE043-B-46-S	Insulation						
7020439	Red		Nor ▼	Nor ▼	100	0 4 1.550 } } } } Yes 0  	
LE043-B-47-S	Brick						
7020439(L2)	Brown		Nor ▼	10	Cell ▼	90	0 4 1.550 } } } } Yes 0         und
	Debris						
7020440	White		Nor ▼	5	Fibr ▼	95	0 4 1.550 } } } } Yes 0         Iso
LE043-B-48-S	Insulation						
7020441	Blue		Nor ▼	Nor ▼	100	0 4 1.550 } } } } Yes 0  	
LE043-B-49-S	Ceramic						
7020442	White		Nor ▼	Nor ▼	100	0 4 1.550 } } } } Yes 0  	
LE043-B-50-S	Ceramic						

Analyst Batch Comments:

END OF SAMPLE LOG

**BATCH / SAMPLE MANAGEMENT REPORT**

<b>Customer No:</b>	<b>LRG308</b>	<b>Batch Number:</b>	<b>617132</b>
<b>Customer:</b>	The L & R Group - Technical Services 680 South Progress Ave 2A Meridian ID	<b>Project:</b>	Mountain Home AFB
<b>Customer Rep:</b>	Shirley Clark	<b>Project Number:</b>	200050T
		<b>TAT:</b>	5 Day
<b># of Samples:</b>	<b>15</b>	<b>Date/Time Recd:</b>	<b>07/27/2020 10:59 AM</b>
	<b>Analysis: TEM - ISO 10312</b>	<b>Date/Time Due:</b>	<b>08/03/2020 5:00 PM</b>

**Client Notes:** N/A

**Lab Technician Notes:** N/A Box received in good condition, completely sealed L

**Accounting Notes:** N/A

**Report Processing Notes:** N/A

**Shipping Error:**

- \_\_\_\_\_ Samples were not received in a sealed container. Bulk samples not double bagged.
- \_\_\_\_\_ Air Cassettes received open in bag...sample integrity compromised, possible contamination.
- \_\_\_\_\_ Samples received wet.
- \_\_\_\_\_ Samples received covered with dust...possible cross contamination.
- \_\_\_\_\_ Sample containers damaged, contents spilled...possible cross contamination.
- \_\_\_\_\_ Paperwork received in the same bag as samples possible contamination.
- \_\_\_\_\_ No / Incomplete Chain of Custody Received.
- \_\_\_\_\_ No / Incomplete Sample Log Received.
- \_\_\_\_\_ Sample container IDs do not match the client's sample log.
- \_\_\_\_\_ No Turnaround Time indicated.
- \_\_\_\_\_ PCM Re-prep for TEM NIOSH 7402. Cassettes previously opened and portion of filter removed.
- ✓ \_\_\_\_\_ Blank (s) not submitted as required by the requested analytical method.
- \_\_\_\_\_ Minimum shipping requirements not attained. See attached Carrier Air Bill.
- \_\_\_\_\_ Other: \_\_\_\_\_

**Batch Error:**

- \_\_\_\_\_ Wrong Client ID Listed
- \_\_\_\_\_ Wrong Client Location Listed
- \_\_\_\_\_ Wrong Project ID Listed
- \_\_\_\_\_ Wrong TurnAround Time Listed
- \_\_\_\_\_ Wrong Due Date Listed
- \_\_\_\_\_ Wrong Date / Time Received Listed
- \_\_\_\_\_ Wrong Analysis Method Listed
- \_\_\_\_\_ Wrong Number of Samples Listed

**Analysis Acknowledgement**

- ☐ TEM Prep \_\_\_\_\_
- ☐ TEM - ISO 10312 \_\_\_\_\_

Lab Blank prepared with samples. Located in Grid Box # 2071 in Grid slots 61 & 63.

**Login Error:**

- \_\_\_\_\_ Sample Log Stamped Incorrectly:
- \_\_\_\_\_ Sample Containers Mislabeled
- \_\_\_\_\_ Duplicate / Extra Samples Not Stamped
- \_\_\_\_\_ Lab Technician Bench Sheet Error

## Login

---

**From:** Frank Ehrenfeld  
**Sent:** Tuesday, July 21, 2020 2:16 PM  
**To:** Login  
**Subject:** FW: MHA FB TEM samples

Hold upon arrival for inspection and documentation. Thanks → *Approved by FE 7/27*

**From:** Laurie Kuther <laurie@lrenviro.com>  
**Sent:** Tuesday, July 21, 2020 2:08 PM  
**To:** Shirley Clark <shirleyclark@iatl.com>; Frank Ehrenfeld <frankehrenfeld@iatl.com>  
**Subject:** MHA FB TEM samples

Hi there! They have started the sample collection and will be picking the samples up tomorrow. I am thinking that you should see the samples either Thursday or Friday, depending on how late it is when they pick the samples up. This will be the case for the next two weeks as well.

Thanks!



**LAURIE KUTHER**  
*Laboratory Manager  
Environmental Professional*

**Office Address:**  
680 South Progress Avenue, Suite 2A  
Meridian, Idaho 83642

**Office:** 208-813-7700  
**Email:** laurie@lrenviro.com



### CONFIDENTIALITY NOTICE:

This email is intended only for the personal and confidential use of the individual(s) named as recipient(s) and is covered by the Electronic Communications Privacy Act, 18 U.S.C.2510-2521. It may contain information that is confidential and protected from disclosure under applicable law. If you have received this email in error, please notify the sender and delete this message from your computer. Do not forward, copy or disclose its contents.

## Chain of Custody

—Airborne Asbestos—

### Contact Information

Client Company: The L&R Group  
Office Address: 680 S. Progress Ave.  
City, State, Zip: Meridan, ID, 83642  
Fax Number: \_\_\_\_\_  
Email Address: laurie@lrenviro.com

Project Number: 200050T  
Project Name: Mountain Home AFB  
Primary Contact: Laurie Kuther  
Office Phone: 208.813.7700  
Cell Phone: \_\_\_\_\_

### Matrix/Method:

- ☐ PCM: NIOSH 7400  
☐ PCM: OSHA ID-160  
☐ TEM: NIOSH 7402  
☐ TEM: AHERA 40 CFR 763  
☒ TEM: ISO 10312  
☐ TEM: ISO 13794  
☐ Other \_\_\_\_\_

### Special Instructions:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Turnaround Time

Preliminary Results Requested Date: \_\_\_\_\_ ☐ Verbal ☐ Email ☐ Fax  
Specific date / time  
☒ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day\* ☐ 12 Hour\*\* ☐ 6 Hour\*\* ☐ RUSH\*\*

\* End of next business day unless otherwise specified. \*\* Matrix Dependent. \*\*\*Please notify the lab before shipping\*\*\*

### Chain of Custody

Relinquished (Name/Organization):	<u>L&amp;R Group</u>	Date:	<u>7/22/2020</u>	Time:	<u>15:30</u>
Received (Name / iATL):	<u>Mr 7/27/20 10:15 AM</u>	Date:	_____	Time:	_____
Sample Login (Name / iATL):	<u>7/27/20 11 AM</u>	Date:	_____	Time:	_____
Analysis(Name(s) / iATL):	<u>MS 7/28/20 10:30 AM</u>	Date:	_____	Time:	_____
QA/QC Review (Name / iATL):	_____	Date:	_____	Time:	<u>JUL 27 2020</u>
Archived / Released:	_____	QA/QC InterLAB Use:	_____	Date:	_____

AMP BR 7/28/20 6:21 AM

ALL - by

## Sample Log

—Airborne Asbestos—

Client: **L&R Group**

Project: **200050T**

Sampling Date/Time: **7/21/2020**

Client Sample #	iATL #	Location/ Description	Flow Rate	Start End	Sampling time (min)	Area (ft2) Volume (L)	Results ( )
01	7040574	LR-043	7LPM	1250-0035	687min	4800L	
02	7040575	LR-043	7LPM	1257-0042	687min	4800L	
03	7040576	LR-043	7LPM	1301-0046	687min	4800L	
04	7040577	LR-043	7LPM	1306-0051	687min	4800L	
05	7040578	LR-043	7LPM	1309-0054	687min	4800L	
06	7040579	LR-043	7LPM	1313-0058	687min	4800L	
07	7040580	LR-043	7LPM	1339-0124	687min	4800L	
08	7040581	LR-043	7LPM	1346-0131	687min	4800L	
09	7040582	LR-043	7LPM	1353-0138	687min	4800L	
10	7040583	LR-043	7LPM	1402-0147	687min	4800L	
11	7040584	LR-043	7LPM	1409-0154	687min	4800L	
12	7040585	LR-043	7LPM	1418-0203	687min	4800L	
13	7040586	LR-043	7LPM	1335-0120	687min	4800L	
14	7040587	LR-043	7LPM	1341-0126	687min	4800L	
15	7040588	LR-043	7LPM	1341-0134	687min	4800L	

\* = Insufficient Sample Provided to Perform QC Reanalysis (<200mg)

\*\* = Insufficient Sample Provided to Analyze (<50mg) \*\*\* = Matrix / Substrate Interference Possible

FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.

These preliminary results are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.



## Sample Log

—Airborne Asbestos—

Client: **L&R Group**

Project: **200050T**

Sampling Date/Time: **7/21/2020**

Client Sample #	iATL #	Location/ Description	Flow Rate	Start End	Sampling time (min)	Area (ft2) Volume (L)	Results ( )
01	7040574	LR-043	7LPM	1250-0035	687 <sup>70.5</sup> min	4800L	4935
02	7040575	LR-043	7LPM	1257-0042	687 <sup>70.5</sup> min	4800L	4935
03	7040576	LR-043	7LPM	1301-0046	687 <sup>70.5</sup> min	4800L	4935
04	7040577	LR-043	7LPM	1306-0051	687 <sup>70.5</sup> min	4800L	4935
05	7040578	LR-043	7LPM	1309-0054	687 <sup>70.5</sup> min	4800L	4935
06	7040579	LR-043	7LPM	1313-0058	687 <sup>70.5</sup> min	4800L	4935
07	7040580	LR-043	7LPM	1339-0124	687 <sup>70.5</sup> min	4800L	4935
08	7040581	LR-043	7LPM	1346-0131	687 <sup>70.5</sup> min	4800L	4935
09	7040582	LR-043	7LPM	1353-0138	687 <sup>70.5</sup> min	4800L	4935
10	7040583	LR-043	7LPM	1402-0147	687 <sup>70.5</sup> min	4800L	4935
11	7040584	LR-043	7LPM	1409-0154	687 <sup>70.5</sup> min	4800L	4935
12	7040585	LR-043	7LPM	1418-0203	687 <sup>70.5</sup> min	4800L	4935
13	7040586	LR-043	7LPM	1335-0120	687 <sup>70.5</sup> min	4800L	4935
14	7040587	LR-043	7LPM	1341-0126	687 <sup>70.5</sup> min	4800L	4935
15	7040588	LR-043	7LPM	1341-0134	687 <sup>71.3</sup> min	4800L	4991

\* = Insufficient Sample Provided to Perform QC Reanalysis (<200mg)

\*\* = Insufficient Sample Provided to Analyze (<50mg) \*\*\* = Matrix / Substrate Interference Possible

FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.

These preliminary results are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.

## FINAL RESULTS

### Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Client No.: LRG308

Project: Mountain Home AFB - Replicates  
Project No.: 200050T - Batch # 617132

Turn-Around Time: 5 Days

#### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

#### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

#### Chain of Custody:

Samples Taken in Field:	L&R Group	Date:	7/22/20	Time:	
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/27/20	Time:	10:15 AM
Samples Prepped:	B. Reich	Date:	7/28/20	Time:	6:21 AM
Samples Analyzed:	M. Stewart	Date:	7/30/20	Time:	11:00 AM
Preliminary Results Faxed:		Date:		Time:	
Preliminary Results E-Mail:		Date:		Time:	

#### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
2-Rep	7040575R	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
12-Rep	7040585R	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

**NSD** = No Structures Detected **1** - Primary Structures: Fibers, bundles, clusters and matrices **2** - Total Structures: Includes component fibers of primary clusters and matrices **3** - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. **4** - Total Asbestos Structures in relation to area analyzed. **5** - Total Asbestos Structures of all sizes as a function of the volume of air sampled. **6** - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. **7** - For all structures >5µm in length.

Grid Box #: 2072

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID  
Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 200050T - Batch # 617132

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field:	L&R Group	Date:	7/22/20	Time:	
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/27/20	Time:	10:15 AM
Samples Prepped:	B. Reich	Date:	7/28/20	Time:	6:21 AM
Samples Analyzed:	M. Stewart	Date:	7/28/20	Time:	10:30 AM
Preliminary Results Faxed:		Date:		Time:	
Preliminary Results E-Mail:		Date:		Time:	

### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
01	7040574	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
02	7040575	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
03	7040576	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
04	7040577	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
05	7040578	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
06	7040579	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

**NSD** = No Structures Detected **1** - Primary Structures: Fibers, bundles, clusters and matrices **2** - Total Structures: Includes component fibers of primary clusters and matrices **3** - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. **4** - Total Asbestos Structures in relation to area analyzed. **5** - Total Asbestos Structures of all sizes as a function of the volume of air sampled. **6** - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. **7** - For all structures >5µm in length.

Grid Box #: 2071

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Project: Mountain Home AFB  
Project No.: 200050T - Batch # 617132

Client No.: LRG308

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field:	L&R Group	Date:	7/22/20	Time:	
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/27/20	Time:	10:15 AM
Samples Prepped:	B. Reich	Date:	7/28/20	Time:	6:21 AM
Samples Analyzed:	M. Stewart	Date:	7/29/20	Time:	7:20 AM
Preliminary Results Faxed:		Date:		Time:	
Preliminary Results E-Mail:		Date:		Time:	

### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
07	7040580	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
08	7040581	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
09	7040582	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
10	7040583	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
11	7040584	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
12	7040585	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
13	7040586	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

**NSD** = No Structures Detected **1** - Primary Structures: Fibers, bundles, clusters and matrices **2** - Total Structures: Includes component fibers of primary clusters and matrices **3** - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. **4** - Total Asbestos Structures in relation to area analyzed. **5** - Total Asbestos Structures of all sizes as a function of the volume of air sampled. **6** - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. **7** - For all structures >5µm in length.

Grid Box #: 2071

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

## FINAL RESULTS

### Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Project: Mountain Home AFB  
Project No.: 200050T - Batch # 617132

Client No.: LRG308

Turn-Around Time: 5 Days

#### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

#### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

#### Chain of Custody:

Samples Taken in Field:	L&R Group	Date:	7/22/20	Time:	
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/27/20	Time:	10:15 AM
Samples Prepped:	B. Reich	Date:	7/28/20	Time:	6:21 AM
Samples Analyzed:	M. Stewart	Date:	7/30/20	Time:	7:40 AM
Preliminary Results Faxed:		Date:		Time:	
Preliminary Results E-Mail:		Date:		Time:	

#### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
14	7040587	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
15	7040588	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
LB	LB	0.0	None Detected	0	None Detected	< 7.7	NA
LB	LB	0.0	None Detected	0	None Detected	< 7.7	NA

**NSD** = No Structures Detected **1** - Primary Structures: Fibers, bundles, clusters and matrices **2** - Total Structures: Includes component fibers of primary clusters and matrices **3** - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. **4** - Total Asbestos Structures in relation to area analyzed. **5** - Total Asbestos Structures of all sizes as a function of the volume of air sampled. **6** - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. **7** - For all structures >5µm in length.

Grid Box #: 2071

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.





IATL  
Reports Group  
NG

9000 Commerce Parkway Suite B  
Mt. Laurel, New Jersey 08054  
Telephone: 8562319449  
Email: customerservice@iatl.com

### BATCH / SAMPLE MANAGEMENT REPORT

<b>Customer No:</b>	<b>LRG308</b>	<b>Batch Number:</b>	<b>617346</b>
<b>Customer:</b>	The L & R Group - Technical Services 680 South Progress Ave 2A Meridian ID	<b>Project:</b>	Mountain Home AFB
<b>Customer Rep:</b>	Shirley Clark	<b>Project Number:</b>	20050T
		<b>TAT:</b>	5 Day
<b># of Samples:</b>	<b>15</b>	<b>Analysis:</b>	<b>TEM - ISO 10312</b>
		<b>Date/Time Recd:</b>	<b>07/30/2020 10:30 AM</b>
		<b>Date/Time Due:</b>	<b>08/06/2020 5:00 PM</b>

**Client Notes:** N/A

**Lab Technician Notes:** N/A package rec'd in good condition L

**Accounting Notes:** N/A

**Report Processing Notes:** N/A

#### Shipping Error:

- \_\_\_\_\_ Samples were not received in a sealed container. Bulk samples not double bagged.
- \_\_\_\_\_ Air Cassettes received open in bag...sample integrity compromised, possible contamination.
- \_\_\_\_\_ Samples received wet.
- \_\_\_\_\_ Samples received covered with dust...possible cross contamination.
- \_\_\_\_\_ Sample containers damaged, contents spilled...possible cross contamination.
- \_\_\_\_\_ Paperwork received in the same bag as samples possible contamination.
- \_\_\_\_\_ No / Incomplete Chain of Custody Received.
- \_\_\_\_\_ No / Incomplete Sample Log Received.
- \_\_\_\_\_ Sample container IDs do not match the client's sample log.
- \_\_\_\_\_ No Turnaround Time indicated.
- \_\_\_\_\_ PCM Re-prep for TEM NIOSH 7402. Cassettes previously opened and portion of filter removed.
- \_\_\_\_\_ Blank (s) not submitted as required by the requested analytical method.
- \_\_\_\_\_ Minimum shipping requirements not attained. See attached Carrier Air Bill.
- \_\_\_\_\_ Other: No Field Blanks Provided. Lab Blanks prepared alongside samples.

#### Batch Error:

- \_\_\_\_\_ Wrong Client ID Listed
- \_\_\_\_\_ Wrong Client Location Listed
- \_\_\_\_\_ Wrong Project ID Listed
- \_\_\_\_\_ Wrong TurnAround Time Listed
- \_\_\_\_\_ Wrong Due Date Listed
- \_\_\_\_\_ Wrong Date / Time Received Listed
- \_\_\_\_\_ Wrong Analysis Method Listed
- \_\_\_\_\_ Wrong Number of Samples Listed

#### Analysis Acknowledgement

- ☐ TEM Prep \_\_\_\_\_
- ☐ TEM - ISO 10312 \_\_\_\_\_

#### Login Error:

- \_\_\_\_\_ Sample Log Stamped Incorrectly:
- \_\_\_\_\_ Sample Containers Mislabeled
- \_\_\_\_\_ Duplicate / Extra Samples Not Stamped
- \_\_\_\_\_ Lab Technician Bench Sheet Error

## Chain of Custody

—Airborne Asbestos—

### Contact Information

Client Company: The L&R Group  
Office Address: 680 S. Progress Ave.  
City, State, Zip: Meridian  
Fax Number: \_\_\_\_\_  
Email Address: Laurie@lrenviro.com

Project Number: 200050T  
Project Name: Mountain Home AFB  
Primary Contact: Laurie Kuther  
Office Phone: 208.813.7700  
Cell Phone: \_\_\_\_\_

### Matrix/Method:

- ☐ PCM: NIOSH 7400  
☐ PCM: OSHA ID-160  
☐ TEM: NIOSH 7402  
☐ TEM: AHERA 40 CFR 763  
☒ TEM: ISO 10312  
☐ TEM: ISO 13794  
☐ Other \_\_\_\_\_

### Special Instructions:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Turnaround Time

Preliminary Results Requested Date: \_\_\_\_\_  
Specific date / time  
☒ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day\* ☐ 12 Hour\*\* ☐ 6 Hour\*\* ☐ RUSH\*\*

\* End of next business day unless otherwise specified. \*\* Matrix Dependent. \*\*\*Please notify the lab before shipping\*\*\*

### Chain of Custody

Relinquished (Name/Organization): <u>L&amp;R Group</u>	Date: <u>7/29/2020</u>	Time: <u>1400</u>
Received (Name / iATL): <u>L&amp;R 7/30/20 @ 10:10am</u>	Date: _____	Time: _____
Sample Login (Name / iATL): <u>L&amp;R 7/30/20 @ 10:30am</u>	Date: _____	Time: _____
Analysis(Name(s) / iATL): <u>AMS</u>	Date: <u>8/4/20</u>	Time: _____
QA/QC Review (Name / iATL): _____	Date: _____	Time: _____
Archived / Released: _____	QA/QC InterLAB Use: _____	Date: _____ Time: _____

prep BR 813120

## Sample Log

—Airborne Asbestos—

Client: **L&R Group**

Project: **200050T**

Sampling Date/Time: **7/29/2020**

Client Sample #	iATL #	Location/ Description	Flow Rate	Start End	Sampling time (min)	Area (ft2) Volume (L)	Results ( )
01	7042315	LR-043	7LPM	11:06am 10:33pm	687	4800	
02	7042316	LR-043	7LPM	11:13am 10:40pm	687	4800	
03	7042317	LR-043	7LPM	11:18am 10:45pm	687	4800	
04	7042318	LR-043	7LPM	11:20am 10:47pm	687	4800	
05	7042319	LR-043	7LPM	11:22pm 10:49pm	687	4800	
06	7042320	LR-043	7LPM	11:29am 10:56pm	687	4800	
07	7042321	LR-043	7LPM	11:54am 11:21pm	687	4800	
08	7042322	LR-043	7LPM	12:00pm 11:27pm	687	4800	
09	7042323	LR-043	7LPM	12:05pm 11:32pm	687	4800	
10	7042324	LR-043	7LPM	12:12pm 11:39pm	687	4800	
11	7042325	LR-043	7LPM	12:17pm 11:44pm	687	4800	
12	7042326	LR-043	7LPM	12:23pm 11:50pm	687	4800	
13	7042327	LR-043	7LPM	11:50am 11:17pm	687	4800	
14	7042328	LR-043	7LPM	12:28pm 11:55pm	687	4800	
15	7042329	LR-043	7LPM	12:40pm 12:04am	687	4800	

\* = Insufficient Sample Provided to Perform QC Reanalysis (<200mg)

\*\* = Insufficient Sample Provided to Analyze (<50mg) \*\*\* = Matrix / Substrate Interference Possible

FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.

These preliminary results are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.



International Asbestos  
Testing Laboratories

9000 Commerce Parkway, Suite B, Mt. Laurel, NJ 08054  
Telephone: 856-231-9449 Fax: 856-231-9818

**FINAL RESULTS**  
**Airborne Asbestos Analysis**

*ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)*

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID  
Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617346

Turn-Around Time: 5 Days

Client Contacts:	Laboratory Contacts:
Contacts: _____	Contacts: <u>Frank E. Ehrenfeld III</u>
Phone: _____	Phone: <u>(856) 231-9449</u>
Fax: _____	Fax: <u>(856) 231-9818</u>
Cell/Pager: _____	Cell/Pager: <u>(b) (6)</u>
E-Mail: _____	E-Mail: <u>frankehrenfeld@iatl.com</u>

Chain of Custody:			
Samples Taken in Field:	_____	Date: _____	Time: _____
Samples Rec'd at Laboratory:	<u>L. D'Ornellas</u>	Date: <u>7/30/20</u>	Time: _____
Samples Prepped:	<u>B. Reich</u>	Date: <u>8/3/20</u>	Time: _____
Samples Analyzed:	<u>M. Stewart</u>	Date: <u>8/4/20</u>	Time: _____
Preliminary Results Faxed:	_____	Date: _____	Time: _____
Preliminary Results E-Mail:	_____	Date: _____	Time: _____

**Summary Data**  
**Transmission Electron Microscopy**  
**ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)**

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
01	7042315	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
02	7042316	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
03	7042317	4809.0	1	1	Chrysotile	3.7 J	0.000293 J
04	7042318	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
05	7042319	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
06	7042320	4809.0	None Detected	0	None Detected	< 3.7	0.000293
07	7042321	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
08	7042322	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
09	7042323	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

*Cut 9/18/2020*

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617346

Client No.: LRG308

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field:	_____	Date:	_____	Time:	_____
Samples Rec'd at Laboratory:	<u>L. D'Ornellas</u>	Date:	<u>7/30/20</u>	Time:	_____
Samples Prepped:	<u>B. Reich</u>	Date:	<u>8/3/20</u>	Time:	_____
Samples Analyzed:	<u>M. Stewart</u>	Date:	<u>8/5/20</u>	Time:	_____
Preliminary Results Faxed:	_____	Date:	_____	Time:	_____
Preliminary Results E-Mail:	_____	Date:	_____	Time:	_____

### Summary Data

#### Transmission Electron Microscopy

#### ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
10	7042324	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
11	7042325	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.



## FINAL RESULTS

### Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID  
Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617346

Turn-Around Time: 5 Days

#### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

#### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

#### Chain of Custody:

Samples Taken in Field:	_____	Date:	_____	Time:	_____
Samples Rec'd at Laboratory:	L. D'Ornellas	Date:	7/30/20	Time:	_____
Samples Prepped:	B. Reich	Date:	8/3/20	Time:	_____
Samples Analyzed:	M. Stewart	Date:	8/6/20	Time:	_____
Preliminary Results Faxed:	_____	Date:	_____	Time:	_____
Preliminary Results E-Mail:	_____	Date:	_____	Time:	_____

#### Summary Data

#### Transmission Electron Microscopy

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	<sup>2</sup> Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
12	7042326	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
13	7042327	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
14	7042328	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
15	7042329	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

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## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services

1859 S. Topaz Way Suite 104

Meridian ID

Client No.: LRG308

Project: Mountain Home AFB

Project No.: 20050T - Batch# 617346

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Cell/Pager: \_\_\_\_\_

E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III

Phone: (856) 231-9449

Fax: (856) 231-9818

Cell/Pager: (b) (6)

E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field: \_\_\_\_\_

Samples Rec'd at Laboratory: L. D'Onnellas

Samples Prepped: B. Reich

Samples Analyzed: M. Stewart

Preliminary Results Faxed: \_\_\_\_\_

Preliminary Results E-Mail: \_\_\_\_\_

Date: \_\_\_\_\_

Date: 7/30/20

Date: 8/3/20

Date: 8/6/20

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Time: \_\_\_\_\_

Time: \_\_\_\_\_

Time: \_\_\_\_\_

Time: \_\_\_\_\_

Time: \_\_\_\_\_

Time: \_\_\_\_\_

### Summary Data

#### Transmission Electron Microscopy

#### ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
1	7042315-REP	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
12	7042326-REP	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
LB	LB	0.0	None Detected	0	None Detected	< 7.7	NA
LB	LB	0.0	None Detected	0	None Detected	< 7.7	NA

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25% 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2071

Instrument (I, II, III): III

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9000 Commerce Parkway Suite B  
Mt. Laurel, New Jersey 08054  
Telephone: 8562319449  
Email: customerservice@iatl.com

### BATCH / SAMPLE MANAGEMENT REPORT

<b>Customer No:</b>	<b>LRG308</b>	<b>Batch Number:</b>	<b>617671</b>
<b>Customer:</b>	The L & R Group - Technical Services 680 South Progress Ave 2A Meridian ID	<b>Project:</b>	Mountain Home AFB
<b>Customer Rep:</b>	Shirley Clark	<b>Project Number:</b>	200050T
		<b>TAT:</b>	5 Day
<b># of Samples:</b>	<b>15</b>	<b>Date/Time Recd:</b>	<b>08/06/2020 8:33 AM</b>
	<b>Analysis: TEM - ISO 10312</b>	<b>Date/Time Due:</b>	<b>08/13/2020 5:00 PM</b>

**Client Notes:** N/A

**Lab Technician Notes:** N/A

**Accounting Notes:** N/A

**Report Processing Notes:** N/A

#### Shipping Error:

- \_\_\_\_\_ Samples were not received in a sealed container. Bulk samples not double bagged.
- \_\_\_\_\_ Air Cassettes received open in bag...sample integrity compromised, possible contamination.
- \_\_\_\_\_ Samples received wet.
- \_\_\_\_\_ Samples received covered with dust...possible cross contamination.
- \_\_\_\_\_ Sample containers damaged, contents spilled...possible cross contamination.
- \_\_\_\_\_ Paperwork received in the same bag as samples possible contamination.
- \_\_\_\_\_ No / Incomplete Chain of Custody Received.
- \_\_\_\_\_ No / Incomplete Sample Log Received.
- \_\_\_\_\_ Sample container IDs do not match the client's sample log.
- \_\_\_\_\_ No Turnaround Time indicated.
- \_\_\_\_\_ PCM Re-prep for TEM NIOSH 7402. Cassettes previously opened and portion of filter removed.
- \_\_\_\_\_ Blank (s) not submitted as required by the requested analytical method.
- \_\_\_\_\_ Minimum shipping requirements not attained. See attached Carrier Air Bill.
- \_\_\_\_\_ Other: *No Field Blanks provided, Lab Blanks prepared alongside samples.*

#### Batch Error:

- \_\_\_\_\_ Wrong Client ID Listed
- \_\_\_\_\_ Wrong Client Location Listed
- \_\_\_\_\_ Wrong Project ID Listed
- \_\_\_\_\_ Wrong TurnAround Time Listed
- \_\_\_\_\_ Wrong Due Date Listed
- \_\_\_\_\_ Wrong Date / Time Received Listed
- \_\_\_\_\_ Wrong Analysis Method Listed
- \_\_\_\_\_ Wrong Number of Samples Listed

#### Analysis Acknowledgement

- ☐ TEM Prep \_\_\_\_\_
- ☐ TEM - ISO 10312 \_\_\_\_\_

#### Login Error:

- \_\_\_\_\_ Sample Log Stamped Incorrectly:
- \_\_\_\_\_ Sample Containers Mislabeled
- \_\_\_\_\_ Duplicate / Extra Samples Not Stamped
- \_\_\_\_\_ Lab Technician Bench Sheet Error

## Chain of Custody

–Airborne Asbestos–

### Contact Information

**Client Company:** The L&R Group  
**Office Address:** 680 S. Progress Ave.  
**City, State, Zip:** Meridian  
**Fax Number:**  
**Email Address:** Laurie@lrenviro.com

**Project Number:** 200050T  
**Project Name:** Mountain Home AFB  
**Primary Contact:** Laurie Kuther  
**Office Phone:** 208.813.7700  
**Cell Phone:**

### Matrix/Method:

- ☐ PCM: NIOSH 7400  
☐ PCM: OSHA ID-160  
☐ TEM: NIOSH 7402  
☐ TEM: AHERA 40 CFR 763  
☒ TEM: ISO 10312  
☐ TEM: ISO 13794  
☐ Other \_\_\_\_\_

### Special Instructions:

### Turnaround Time

Preliminary Results Requested Date: \_\_\_\_\_  
Specific date / time  
☒ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☐ 1 Day\* ☐ 12 Hour\*\* ☐ 6 Hour\*\* ☐ RUSH\*\*  
☐ Verbal ☐ Email ☐ Fax

\* End of next business day unless otherwise specified. \*\* Matrix Dependent. \*\*\*Please notify the lab before shipping\*\*\*

### Chain of Custody

Relinquished (Name/Organization):	L&R Group	Date:	8/05/2020	Time:	1400
Received (Name / iATL):	<u>L</u>	Date:		Time:	
Sample Login (Name / iATL):	<u>h 8/6/20 @ 8:30am</u>	Date:		Time:	
Analysis(Name(s) / iATL):	<u>MS</u>	Date:	<u>8/7/20</u>	Time:	
QA/QC Review (Name / iATL):		Date:		Time:	<u>AUG - 6 2020</u>
Archived / Released:		Date:		Time:	

prop BL 8/6/20

## Sample Log

—Airborne Asbestos—

Client: **L&R Group**

Project: **200050T**

Sampling Date/Time: **8/5/2020**

Client Sample #	iATL #	Location/ Description	Flow Rate	Start End	Sampling time (min)	Area (ft <sup>2</sup> ) Volume (L)	Results ( )
01	7045849	LR-043	7LPM	10:35 am 10:02 pm	687	4800	
02	7045850	LR-043	7LPM	10:44 am 10:11 pm	687	4800	
03	7045851	LR-043	7LPM	10:49 am 10:16 pm	687	4800	
04	7045852	LR-043	7LPM	10:53 am 10:20 pm	687	4800	
05	7045853	LR-043	7LPM	10:59 am 10:26 pm	687	4800	
06	7045854	LR-043	7LPM	11:06 am 10:33 pm	687	4800	
07	7045855	LR-043	7LPM	11:34 am 11:01 pm	687	4800	
08	7045856	LR-043	7LPM	11:50 am 11:17 pm	687	4800	
09	7045857	LR-043	7LPM	11:57 am 11:24 pm	687	4800	
10	7045858	LR-043	7LPM	12:12 pm 11:39 pm	687	4800	
11	7045859	LR-043	7LPM	12:17 pm 11:44 pm	687	4800	
12	7045860	LR-043	7LPM	12:24 pm 11:53 pm	687	4800	
13	7045861	LR-043	7LPM	11:30 am 10:57 pm	687	4800	
14	7045862	LR-043	7LPM	12:25 pm 11:52 pm	687	4800	
15	7045863	LR-043	7LPM	12:32 pm 11:59 pm	687	4800	

\* = Insufficient Sample Provided to Perform QC Reanalysis (<200mg)

\*\* = Insufficient Sample Provided to Analyze (<50mg) \*\*\* = Matrix / Substrate Interference Possible

FB = Method Requires the submittal of blank(s). ML = Multi Layered Sample. May result in inconsistent results.

These preliminary results are issued by iATL to expedite procedures by clients based upon the above data. iATL assumes that all of the sampling methods and data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificate of Analysis will follow these preliminary results. The signed COA is to be considered the official results. All EPA, HUD, and NJDEP conditions apply.



## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID  
Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617671  
Turn-Around Time: 5 Days

Client Contacts:	Laboratory Contacts:
Contacts: _____	Contacts: <u>Frank E. Ehrenfeld III</u>
Phone: _____	Phone: <u>(856) 231-9449</u>
Fax: _____	Fax: <u>(856) 231-9818</u>
Cell/Pager: _____	Cell/Pager: <u>(b) (6)</u>
E-Mail: _____	E-Mail: <u>frankehrenfeld@iatl.com</u>

Chain of Custody:			
Samples Taken in Field:	_____	Date: _____	Time: _____
Samples Rec'd at Laboratory:	<u>L. D'Onnellas</u>	Date: <u>8/6/20</u>	Time: _____
Samples Prepped:	<u>B. Reich</u>	Date: <u>8/6/20</u>	Time: _____
Samples Analyzed:	<u>M. Stewart</u>	Date: <u>8/7/20</u>	Time: _____
Preliminary Results Faxed:	_____	Date: _____	Time: _____
Preliminary Results E-Mail:	_____	Date: _____	Time: _____

### Summary Data Transmission Electron Microscopy ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
1	7045849	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
2	7045850	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
3	7045851	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
4	7045852	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
5	7045853	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
6	7045854	4809.0	None Detected	0	None Detected	< 3.7	0.000293
7	7045855	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
8	7045856	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25% 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2077  
Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.



International Asbestos  
Testing Laboratories

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Telephone: 856-231-9449 Fax: 856-231-9818

**FINAL RESULTS**  
**Airborne Asbestos Analysis**

*ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)*

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Client No.: LRG308

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617671

Turn-Around Time: 5 Days

Client Contacts:	Laboratory Contacts:
Contacts: _____	Contacts: <u>Frank E. Ehrenfeld III</u>
Phone: _____	Phone: <u>(856) 231-9449</u>
Fax: _____	Fax: <u>(856) 231-9818</u>
Cell/Pager: _____	Cell/Pager: <u>(b) (6)</u>
E-Mail: _____	E-Mail: <u>frankehrenfeld@iatl.com</u>

Chain of Custody:			
Samples Taken in Field:	_____	Date: _____	Time: _____
Samples Rec'd at Laboratory:	<u>L. D'Omellas</u>	Date: <u>8/6/20</u>	Time: _____
Samples Prepped:	<u>B. Reich</u>	Date: <u>8/6/20</u>	Time: _____
Samples Analyzed:	<u>M. Stewart</u>	Date: <u>8/8/20</u>	Time: _____
Preliminary Results Faxed:	_____	Date: _____	Time: _____
Preliminary Results E-Mail:	_____	Date: _____	Time: _____

**Summary Data**  
**Transmission Electron Microscopy**

**ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)**

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
9	7045857	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
10	7045858	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
11	7045859	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
12	7045860	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
13	7045861	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
14	7045862	4809.0	None Detected	0	None Detected	< 3.7	0.000293
15	7045863	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25%. 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

## FINAL RESULTS Airborne Asbestos Analysis

ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client: The L & R Group - Technical Services  
1859 S. Topaz Way Suite 104  
Meridian ID

Project: Mountain Home AFB  
Project No.: 20050T - Batch# 617671

Client No.: LRG308

Turn-Around Time: 5 Days

### Client Contacts:

Contacts: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Cell/Pager: \_\_\_\_\_  
E-Mail: \_\_\_\_\_

### Laboratory Contacts:

Contacts: Frank E. Ehrenfeld III  
Phone: (856) 231-9449  
Fax: (856) 231-9818  
Cell/Pager: (b) (6)  
E-Mail: frankehrenfeld@iatl.com

### Chain of Custody:

Samples Taken in Field:	_____	Date:	_____	Time:	_____
Samples Rec'd at Laboratory:	<u>L. D'Ornellas</u>	Date:	<u>8/6/20</u>	Time:	_____
Samples Prepped:	<u>B. Reich</u>	Date:	<u>8/6/20</u>	Time:	_____
Samples Analyzed:	<u>M. Stewart</u>	Date:	<u>8/11/20</u>	Time:	_____
Preliminary Results Faxed:	_____	Date:	_____	Time:	_____
Preliminary Results E-Mail:	_____	Date:	_____	Time:	_____

### Summary Data

#### Transmission Electron Microscopy

#### ISO 10312, Ambient Air -- Determination of Asbestos Fibres, Direct Transfer (ISO 10312)

Client Sample ID #	IATL Sample ID #	Volume (L)	<sup>1</sup> Primary Asbestos Structures	Total Asbestos Structures	<sup>3</sup> Asbestos Types Identified	<sup>4,6</sup> Results s/mm <sup>2</sup>	<sup>5,6</sup> Results s/cc
I	7045849-rep	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
II	7045859-rep	4809.0	None Detected	0	None Detected	< 3.7	< 0.000293
LB	LB	0.0	None Detected	0	None Detected	< 7.7	NA
LB	LB	0.0	None Detected	0	None Detected	< 7.7	NA

NSD = No Structures Detected 1 - Primary Structures: Fibers, bundles, clusters and matrices 2 - Total Structures: Includes component fibers of primary clusters and matrices 3 - Includes EPA-regulated asbestos and Libby Amphibole. Refer to raw data for analytical classifications of structures identified. Overload criteria is >25% 4 - Total Asbestos Structures in relation to area analyzed. 5 - Total Asbestos Structures of all sizes as a function of the volume of air sampled. 6 - For a differentiation of PCM-equivalent "fibers" versus AHERA-countable "structures", refer to each sample's Summary Page. 7 - For all structures >5µm in length.

Grid Box #: 2077

Instrument (I, II, III): III

These preliminary results are issued by IATL to expedite procedures by the clients based upon the above data. IATL assumes that all of the sampling data upon which these results are based, has been accurately supplied by the client. These results may not have been reviewed by the Laboratory Director. Final Certificates of Analysis will follow these preliminary results. The signed COAs are to be considered the official results.

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**THE L&R GROUP**  
ENVIRONMENTAL + LABORATORIES

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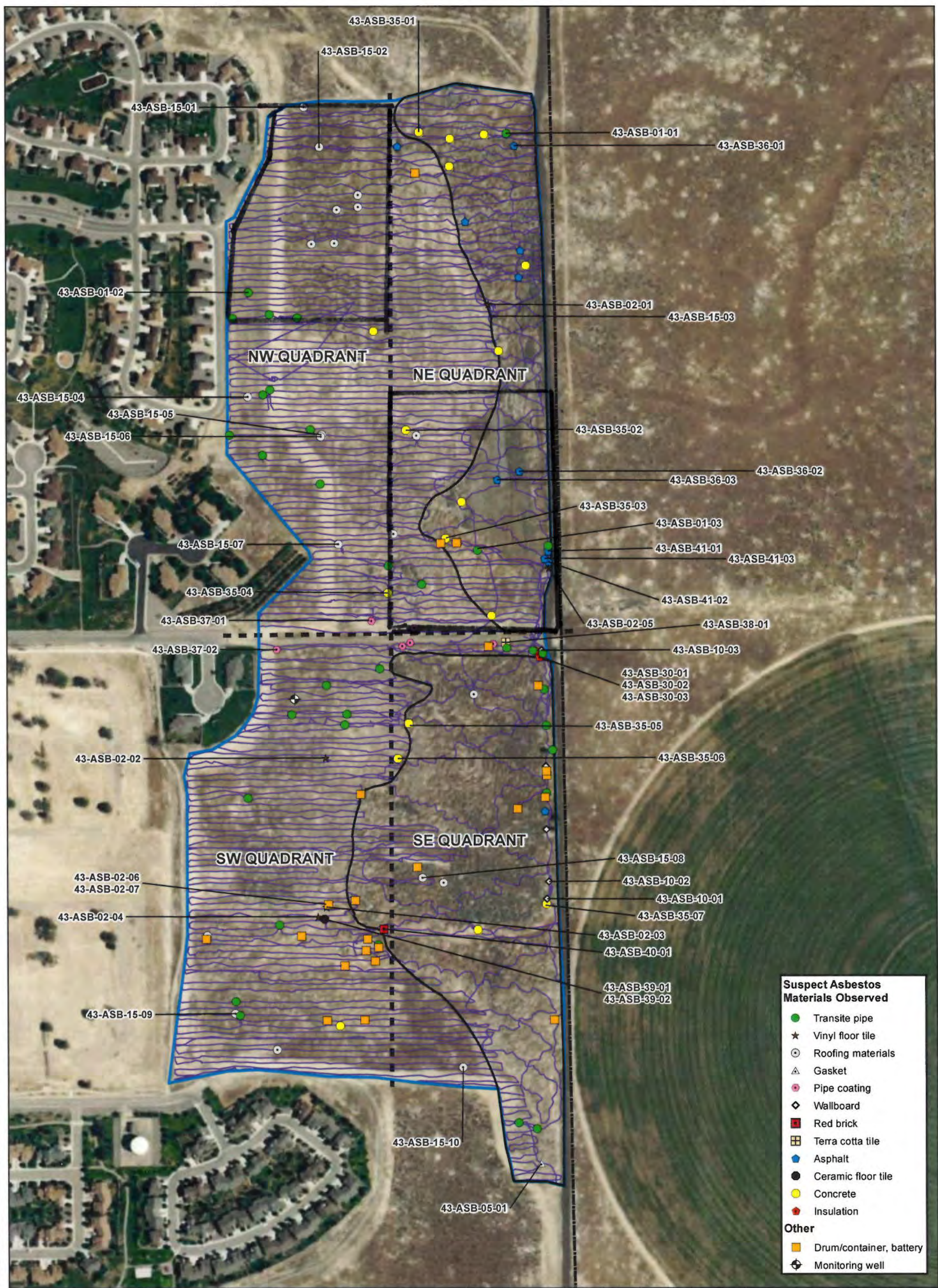
**Appendix I: Figure 3-1, Figure 4-1, and Table 4-1 AECOM 2017 RI/FS**



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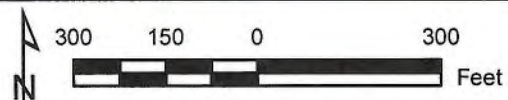
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#### Legend

- Installation Boundary
- Approximate Site Boundary and Fence
- Asbestos Survey Transect
- Basalt Boulder Area

Note:  
Sample 43-ASB-40-02 was collected in the landfill area south of 43-ASB-40-01; however, a GPS location was not collected. This material was negative for ACM.



#### Asbestos Survey Transects and Sample Locations ADDL/LF043 RI/FS Mountain Home AFB, Idaho

Drawn By: MDG	Date: 9/16/2016	Figure 3-1
Checked By: DS	Project No. 60438388	





**TABLE 4-1  
SUMMARY OF BULK SAMPLE ANALYSIS  
LF043, MOUNTAIN HOME AFB, IDAHO**

Building Material Number	Building Material Type	Sample Identification	Building Material Description	Building Material Condition	Sample Date	Sample Location - Landfill Quadrant	Analytical Results	OSHA Classification	NESHAP Category	Total Estimated ACM Volume <sup>1</sup> (CY)	Duplicate Samples
1	Transite Pipe	43-ASB-01-01	Grey	Good	5/23/2016	NE	15% Chrysotile, 5% Crocidolite	Class II	II (non-friable)	~ 2,000 <sup>2</sup>	
		43-ASB-01-02	Grey	Good	5/23/2016	NW	15% Chrysotile, 5% Crocidolite	Class II	II (non-friable)		
		43-ASB-01-03	Grey	Good	5/24/2016	NE	15% Chrysotile, 4% Crocidolite	Class II	II (non-friable)		
2	Vinyl Floor Tile	43-ASB-02-01	Black/grey tile or sheeting with black mastic	Poor	5/23/2016	NE	ND	NA	NA	NA	
		43-ASB-02-02	Grey	Good	5/24/2016	SW	ND	NA	NA	NA	
		43-ASB-02-03	Brown	Good	5/25/2016	SW	2% Chrysotile	Class II	I (non-friable)	550 <sup>3</sup>	43-ASB-02-03D
		43-ASB-02-04	Grey	Good	5/25/2016	SW	ND	NA	NA	NA	
		43-ASB-02-05	White	Good	5/26/2016	NE	ND	NA	NA	NA	
		43-ASB-02-06	Brown	Good	6/21/2016	SW	2% Chrysotile	Class II	I (non-friable)	550 <sup>3</sup>	
		43-ASB-02-07	Blue	Good	6/21/2016	SW	2% Chrysotile	Class II	I (non-friable)	550 <sup>3</sup>	
5	Gasket	43-ASB-05-01	Grey	Poor	5/25/2016	SE	15% Chrysotile	Class II	I (non-friable)	< 1	
10	Wallboard	43-ASB-10-01	Off-white	Poor	5/25/2016	SE	ND	NA	NA	NA	
		43-ASB-10-02	Off-white	Poor	5/25/2016	SE	ND	NA	NA	NA	
		43-ASB-10-03	Off-white	Poor	5/26/2016	SE	ND	NA	NA	NA	
15	Roofing	43-ASB-15-01	Brown felt	Poor	5/23/2016	NW	ND	NA	NA	NA	
		43-ASB-15-02	Brown felt	Poor	5/23/2016	NW	ND	NA	NA	NA	
		43-ASB-15-03	Green/black shingle	Poor	5/23/2016	NE	ND	NA	NA	NA	
		43-ASB-15-04	Green, poor condition	Poor	5/24/2016	NW	ND	NA	NA	NA	
		43-ASB-15-05	Dark red	Poor	5/24/2016	NW	ND	NA	NA	NA	
		43-ASB-15-06	White with tiny red dots	Good	5/24/2016	NW	10% Chrysotile	Class II	I (non-friable)	< 1	
		43-ASB-15-07	Black with tar, mastic and felt	Good	5/24/2016	NW	ND	NA	NA	NA	
		43-ASB-15-08	Black Flooring	Good	5/25/2016	SE	ND	NA	NA	NA	
		43-ASB-15-09	Black felt	Good	5/25/2016	SW	ND	NA	NA	NA	
		43-ASB-15-10	Black felt/shingle	Good	5/25/2016	SE	ND	NA	NA	NA	
30	Insulation	43-ASB-30-01	Grey, within cabinets	Poor	5/25/2016	SE	ND	NA	NA	NA	
		43-ASB-30-02	Grey, within cabinets	Poor	5/25/2016	SE	ND	NA	NA	NA	
		43-ASB-30-03	Grey, within cabinets	Poor	5/26/2016	SE	ND	NA	NA	NA	



TABLE 4-1  
SUMMARY OF BULK SAMPLE ANALYSIS  
LF043, MOUNTAIN HOME AFB, IDAHO

Building Material Number	Building Material Type	Sample Identification	Building Material Description	Building Material Condition	Sample Date	Sample Location - Landfill Quadrant	Analytical Results	OSHA Classification	NESHAP Category	Total Estimated ACM Volume <sup>1</sup> (CY)	Duplicate Samples
35	Concrete	43-ASB-35-01	Grey	Good	5/23/2016	NE	ND	NA	NA	NA	
		43-ASB-35-02	Grey patio step section	Good	5/24/2016	NE	ND	NA	NA	NA	43-ASB-35-02D
		43-ASB-35-03	Grey 8" piping	Good	5/24/2016	NE	ND	NA	NA	NA	
		43-ASB-35-04	Grey piping pieces	Good	5/24/2016	NW	ND	NA	NA	NA	
		43-ASB-35-05	12" grey/red piping	Good	5/24/2016	SE	ND	NA	NA	NA	
		43-ASB-35-06	White roofing shingle with red rocks	Good	5/24/2016	SE	ND	NA	NA	NA	
		43-ASB-35-07	Grey	Good	5/25/2016	SE	ND	NA	NA	NA	43-ASB-35-07D
36	Asphalt	43-ASB-36-01	Black	Poor	5/23/2016	NE	ND	NA	NA	NA	
		43-ASB-36-02	Black with rocks	Poor	5/24/2016	NE	ND	NA	NA	NA	
		43-ASB-36-03	Grey with rocks	Poor	5/24/2016	NE	ND	NA	NA	NA	
37	Pipe Coating	43-ASB-37-01	Black	Poor	5/24/2016	NW	<b>15% Chrysotile</b>	Class II	II (non-friable)	< 1	43-ASB-37-01D
		43-ASB-37-02	Black	Poor	5/24/2016	SW	<b>15% Chrysotile</b>	Class II	II (non-friable)		
38	Terra Cotta Tile	43-ASB-38-01	Red	Good	5/24/2016	SE	ND	NA	NA	NA	
39	Ceramic Tile	43-ASB-39-01	Pink	Good	5/25/2016	SW	ND	NA	NA	NA	
		43-ASB-39-02	Light brown dark brown spots	Good	5/25/2016	SW	ND	NA	NA	NA	
40	Brick	43-ASB-40-01	Red	Good	5/25/2016	SE	ND	NA	NA	NA	
		43-ASB-40-02	Brownish	Good	5/25/2016	SW	ND	NA	NA	NA	
41	Asphalt Coating	43-ASB-41-01	Brown	Poor	5/26/2016	NE	ND	NA	NA	NA	
		43-ASB-41-02	Brown	Poor	5/26/2016	NE	ND	NA	NA	NA	
		43-ASB-41-03	Brown	Poor	5/26/2016	NE	ND	NA	NA	NA	

Notes:  
All samples were analyzed using USEPA Methods 600/M4-82-029 and 600/R-93-116.  
Shading and **Bolded** values indicate materials confirmed through sampling to be ACM.  
<sup>1</sup> Quantities listed are only for materials confirmed through sampling to be ACM. In addition to the quantity observed at the sample location, the quantity shown includes all similar materials observed throughout the landfill and shown on **Figure 4-1** (and surrounding soil).  
<sup>2</sup> For all transect locations other than Areas A through D shown on **Figure 4-1** (a total of approximately 42 square feet observed), it was conservatively assumed based on trench observations that ACM extends to an average depth of 3 feet.  
<sup>3</sup> Quantity shown is based on the depth of the tile observed in Trench 5 (Area D on **Figure 4-1**) and grading patterns observed at the site. Total estimated quantity is divided equally between the blue and the brown floor tile. Brown floor tile represented by 43-ASB-02-05 is assumed to be the same as that represented by sample 43-ASB-02-06 based on sample description, location, and result.  
< = less than  
% = percent  
" = inch  
ACM = Asbestos containing material  
AFB = Air Force Base  
CY = cubic yards  
NA = Not applicable. Material is not asbestos.  
ND = non detect  
NE = Northeast quadrant of landfill  
NESHAP = National Emission Standards for Hazardous Air Pollutants  
NW = Northwest quadrant of landfill  
OSHA = Occupational Safety and Health Administration  
SE = Southeast quadrant of landfill  
SW = Southwest quadrant of landfill  
USEPA = United States Environmental Protection Agency